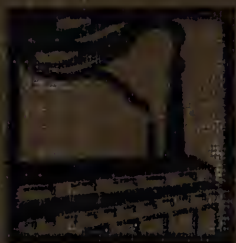


CRAMPTON'S HYGIENE SERIES

HYGIENE FOR THE WORKER



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CRAMPTON'S HYGIENE SERIES

HYGIENE FOR THE WORKER

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24206

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NEW YORK CITY

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HYGIENE FOR THE WORKER.

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PREFACE TO THE SERIES

THE teaching of hygiene fails when it is founded upon the assumption that a knowledge of anatomy is necessary ; it succeeds when it uses the ever-recurring affairs of daily life as the subject matter, and endeavors to regulate those affairs correctly. It should deal with the establishing of good habits, not with the learning of abstruse facts, and should seek to insure the carrying into practice, instructions given in the classroom. In following out these principles, the teacher will make a daily inspection of hands rather than require that a composition be written upon the structure of the skin and the anatomical effects of dirt.

To support this kind of teaching this series of books on Hygiene has been prepared. A book is provided for each elementary school year from the Fourth to the Eighth inclusive ; in addition there is, for older girls, a hygiene dealing particularly with the care of little children and the health factors of home life, and, for the older elementary children and for vocational and industrial high schools, a Hygiene for the Worker.

Each of these books is based upon daily hygienic routine and the hygienic inspection which should begin the day's work in every school every day. In addition, the general topics, such as clothing, food, and exercise, assigned to the year's work, are treated in relation to alcohol and tobacco, anti-tuberculosis measures, home hygiene, and the particular necessities of cold and hot weather.

The editor has spared no effort to obtain the services of those who really know the facts, and some of the writers have international reputation in the subjects with which they deal. Nevertheless, each manuscript has been subjected to repeated revision by prominent physicians and school men and women. For hygienic reasons, no half-tone illustrations have been used, and the specially prepared drawings aim to tell the story concisely. Emphasis is placed upon the positive constructive aspect of the illustration, and pictures of the distressing and disagreeable are not to be found. The books are short and emphatic in essentials, recurring frequently to important points, and no effort is made to exhaust the subject.

It has been the editor's endeavor, one which the authors and publishers have strongly seconded, to provide a series of books adapted directly to the getting of results.

C. W. C.

PREFACE TO HYGIENE FOR THE WORKER

IN preparing this volume the author has had access to the large collection of working models, special reports, and photographs of the American Museum of Safety, and to the collections and exhibits of the International Exposition of Hygiene at Dresden in 1911.

Acknowledgment is made to Directors Hartmann, Karsch, and Mamy, of the Museums of Safety in Berlin, Munich, and Paris respectively, for their many helpful suggestions. Special acknowledgment is due to Mr. John H. Patterson of Dayton, Ohio, for his kindness in placing his unique collection of several thousands of photographs at our disposal for the purpose of selecting the most striking examples of what is being done for safety and industrial hygiene in the best American shop practice.

The book is based upon actual shop conditions and endeavors to set forth in a practical way matters of most importance to good health, happiness, and efficiency.

W. H. T.

EDITOR'S NOTE

This book, the second volume of a two-book elementary school series, is designed for boys and girls from thirteen to eighteen years of age, for special classes preparing to pass examinations for labor certificates, and for vocational, industrial, and manual training high schools. It will be particularly useful in continuation and night schools, for it is adapted to the needs of all workers, old and young.

Prepared upon the plan formulated by the editor, this book is written by an expert of international reputation in industrial hygiene. Its facts have been verified by sound medical authority, and its method approved by teachers of experience.

To equip the worker to care for himself under actual working conditions as they exist to-day and to add to his happiness and efficiency are the two purposes of the book.

C. W. C.

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HYGIENE FOR THE WORKER

CHAPTER I

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APPLYING FOR A POSITION



At school

enough to have completed a high school training, he will find that he possesses an equipment that will overcome many an obstacle in the way of success.

Some of you have been looking forward to this event, eager to know and to enjoy the independence that comes only

About to go to work. — The boy or girl about to go to work has reached one of the most important turning points in life.

If he has finished the elementary school course, he will be able to meet most of the demands of ordinary business life. If he is fortunate



At work

through the honest earning of your "bread and butter." Others, perhaps through necessity rather than choice, are about to enter the business world, with little realization of the trials and responsibilities to be met. But the overcoming of these new trials and the acceptance of these responsibilities will afford one of the most enduring satisfactions of life.

Now that you are about to leave your school days and the more or less irresponsible period of life, you must take stock of yourself — as it were — to see what you have to offer in fair exchange for your first position.

An opening is learned of, perhaps through a friend who knows of a vacancy, or through an advertisement. You decide to apply for that position. Now, how do you think you should go about it? When you present yourself for a position, bear in mind that you will be closely scrutinized by the man who may become your employer.

The employer's inspection. — Remember that the man, or firm, employing one or two, a dozen, a hundred, perhaps thousands of employees, has had a great deal of experience in judging the character and possibilities of those who apply for work. The employer, naturally, must have his own interests at heart in engaging a boy or girl to work for him. He does not know, of course, what you *can* do, but he is able, from his business experience, to "size you up" and to form a pretty true estimate of what you *may* do or may be trained to do.

Manner and appearance. — An employer is always ready to consider the application of a boy or girl who comes to him with self-confident bearing. This, however, must not be taken to mean boldness or forwardness.

He will pay more attention to the applicant whose person shows the unmistakable signs of cleanliness, than he will to him whose appearance is slovenly and untidy. He will choose the boy or girl who is neatly and plainly dressed, in preference to the one who comes to him in showy, elaborate garments, thinking he is making a good impression.

The employer reasons in this way : —

“ If the person I want for this job is clean and neat and self-reliant, I may be sure that his morals and methods of work are equally clean and straightforward. His personal appearance tells me he will have the same respect for his work that he has for himself.”

Neatness of appearance is a more important business asset than most boys and girls realize.

For example, a professional man who has had a wide experience in meeting all classes and conditions of



The employer's inspection

people, recently made the statement that, under no circumstances, would he employ in his office a young person who came to him with unclean finger nails.

It will not be a difficult matter for you to have confidence in yourself, or to show it in your carriage and bearing, if you carry about with you a clean, healthy body ; and such

a condition of wholesomeness is within the reach of all. The confidence which comes from a knowledge of one's own efficiency, backed up by good health, is easily distinguished from the self-assurance of one who is too lazy to keep well.

The daily inspection. — The only way to be sure that you will make a good impression under the inspection of the employer, is for you to inspect yourself critically before you apply for the position. The only way for you to be sure that you overlook nothing is to get in the habit of making such an inspection from top to toe every day before you leave home.

Hair. — Most boys and girls, ordinarily, do not value or pay sufficient attention to the little things that go to make up a good appearance.

Take the hair, for instance. If you want to make a good impression, don't apply for a position with your scalp and hair so unclean as to be offensive.

It has now become the rule, in certain large offices, to draw the line against the girls and young women whose hair is fantastically arranged in the extreme of style. Elaborate head dressings suggest to the employer a certain vanity, self-consciousness, and frivolity that render a girl unable to put her mind seriously upon her work.

Clothing. — Here also should be mentioned the impropriety of wearing, during business, clothing that seems suitable only for evening or home use. The type of waist known as the lingerie is one that the business girl should not wear in the office. It is neither sensible nor dignified. Nor is it an economy, for on account of its sheerness it requires greater care and expense in laundering; hence, it

is seldom washed as frequently as it should be. There is nothing more distasteful to the average business man than unclean finery.

Boys and girls both are inclined to run to extremes of style in their dress, usually preferring garments that are of the most up-to-date cut and shape to those of more modest appearance, which are generally found to be made better and of more enduring materials. This is equally true of hats and shoes. An employer will probably notice whether you are wearing elaborately cut and high-heeled shoes, run down, unbrushed, and with broken laces, or whether your feet are shod in sensible, well-fitting shoes, kept clean and neat.

It is well for the boy and girl about to become wage earners to remember, in buying their clothing, the counsel of old Polonius to his son : —

“ Costly thy habit as thy purse can buy,
But not expressed in fancy.”

Cleanliness. — Do not think there is any substitute for cleanliness of body. It is foolish to think that the neglect of the body can be long concealed. A famous physician once said that, as he walked along a busy city street, he could always pick out those persons who bathed daily. To his trained eye, the condition of the skin, the complexion, and a certain alertness in the carriage of the body, bore testimony to the habits of the individual.

Do not get the bad habit of loading the body with cheap perfumes, expecting them to take the place of a bath. As one man, who has met all varieties of human nature in his business experience, puts it, “ I instinctively distrust the

person whose body reeks with the odor of cheap perfumes ; it seems to me like an endeavor to conceal uncleanness."

This may apply more to girls, but it is equally true that an employer is prejudiced against the boy or young man who comes to him smelling strongly of tobacco, particularly of cigarettes. The cigarettist is seldom a success in the business world, and, at the outset, he will learn that the best positions are open to the boys who do not use tobacco.

So small a thing as chewing gum may also stand in the way of your securing the position you want. It is just as well to stop such foolish habits and to avoid all these hindrances now, so that they will not interfere with your success later on or cause you to wonder why "the good jobs are so scarce."

But even more important than these requisites is that of good health.

✓ **Importance of good health.** — Good health is a prime factor in success. Not only will it help you to secure a good position, but it will enable you to keep it and to do your work well, without undue fatigue and exhaustion. It will enable you also to do your work with a greater degree of interest and pleasure.

Good health is at once apparent in the carriage and posture of the body, in clear eyes and clean complexion, in a quickness of thought and general alertness, and in steadiness of nerves.

If you are not now enjoying the measure of good health you should have, it is within your power to attain and keep it.

Later, we shall offer suggestions for hygiene and right living that will, if faithfully followed, put your body in the

best possible condition for meeting the demands of a working day.

You cannot afford to be ill, when once you become a worker, for even if you do not actually lose your position through irregular attendance due to sickness, you will probably suffer a loss in wages; and, once you have been initiated into the joy of pay day, with the wages of faithful work in your pay envelope, you will not wish to lose any of the substantial benefits of good health.

Cheerfulness. — We might, with profit, dwell upon the cheerful disposition that usually goes with a healthy body. We all prefer those friends who are cheerful and amiable. Isn't it just as probable that an employer will pick out the pleasant-faced, cheerful boy or girl to work for him, in preference to one whose expression is sour and gloomy and whose manner is short and surly?

Good health is indeed the greatest asset of the boy or girl who is about to go to work; for good health enables him to do better and more useful work, and this, in turn, leads to greater happiness and success.

THE MORNING INSPECTION

1. *Hair.* — Is it well brushed, well ordered, not greasy?
For girls — neatly and securely bound up, without any extreme in fashion?
2. *Face, Neck, Ears, Nose.* — Clean? For girls — the skin should not be shiny or show any evidence of powder.
3. *Eyes.* — Are they red or inflamed? Is there dirt or matter in the corner?

4. *Hands.* — Clean? Finger nails clean, trimmed, skin pushed back?
5. *Collar, Cuffs, Shirt.* — Clean?
6. *Tie.* — Well tied and neat?
7. *Clothes.* — Clean, no spots, not mussed, well brushed, no buttons missing? Pockets clean and nothing superfluous in them?
8. *Clean handkerchief.*
9. *Shoes.* — Brushed, laces not frayed or knotted?
10. Are you starting the day with good posture? Have you clean skin, clean underclothes? Have you cleaned the intestinal tract of accumulated waste? Have you had enough sleep in good fresh air?

CHAPTER II

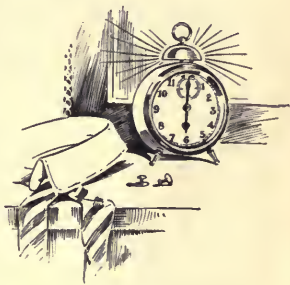
PREPARING FOR THE DAY'S WORK

Getting out of bed. — Have a regular hour for rising and stick to it. Start the day on schedule time without borrowing or losing a minute. It sounds easy, but all of us know how very difficult it is to leave our comfortable beds at an early hour, especially on cold, dark winter mornings.

It really requires a great deal of will power to force one's self out of bed — no matter how one feels — at the same hour every day, summer and winter, in fair or boisterous weather ; but the good results of this self-discipline are beyond calculation.

There is always much to be gained from systematic habits of living, because to do the same thing in the same way, over and over again, relieves the brain of a lot of unnecessary thinking about what must be done. In this way, much time as well as nervous energy can be saved.

How long to sleep. — After experimenting a little in the matter, one realizes that it is easier to rise at the regular hour every morning, if the body has had sufficient sleep. In other words, we commence the day right by going to bed right the night before and sleeping with the fresh



"Get up!"

air from the open windows invigorating the body for the next day.

The time needed by the human machine for rest and repair varies according to the individual. Eight hours of sleep are required by the average person, but the nervous, highly strung people usually need more than this, and ten hours asleep are well spent.

If one has rested comfortably during the night, breathing in plenty of pure, fresh air, he will rise refreshed by his sleep and ready for the day's work. That well-known condition referred to as "getting out of the wrong side of the bed" is always responsible for the fatiguing, unsuccessful day that follows; but it is a physical rather than a mental condition.



Exercise 1

Let us be charitable enough to believe that the "grouch" is the inevitable result of wrong habits of living, which can and should be made over, if the individual is to enjoy success and happiness in his work.

Exercises. — Having jumped out of bed, close the windows and begin your exercises, for the room may be cold and your body should be

in a glow before the bath.

1. Place the hands on the hips and bend to one side, then to the other, a little at first, for the muscles are still sleepy. Begin by doing this exercise twelve times, but increase gradually till you are doing thirty vigorous bendings every morning.

2. Raise the arms slowly forward and upward as high as you can, rising on toes and inhaling; pause a moment with the chest full and exhale, bringing the arms slowly down to the side. Ten good breaths is enough.



Exercise 2

3. Next clasp the hands behind you and bend the

Exercise 3

knees so that your fingers touch the heels. This will require some practice before you can keep your balance, but it exercises muscles you will hardly use all day. Twenty times is enough.

4. Take five full breaths just as described in the second exercise.
5. Separate the feet well



Exercise 5

and swing the arms downward and under as far as you can, then rapidly swing them up and over the head, bending backward as far as you dare, then down again, counting up to twenty times. Go at this exercise gradually, for the trunk muscles are often the weakest of the whole body.

6. If troubled with constipation, stand as straight as you can, and raise the knees alternately to the chest twenty times.

Now your blood is in good circulation and you are ready for the bath.

Bathing. — Cleanliness is said to be next to godliness, but it is also very close to success, if we accept the advice of Benjamin Franklin, one of whose rules of life was to "tolerate no uncleanness in body, clothes, or habitation."

Having done your exercises, the next thing to do is to give the human machine a good cleaning.

The skin of the body is filled with millions of little glands that are continually secreting waste matter, much the same as that cast off every day through the bowels and kidneys. It is evident, then, how very important it is to keep the pores of the skin from becoming clogged with the poisonous wastes of the body, as they are when we neglect to bathe regularly.

Every man's tonic. — If you haven't the time or the opportunity to get into the tub every day, then be sure to sponge off the body and give it a good rubbing with a coarse towel before putting on your clothing. If you can accustom yourself to it, a cold bath is far more beneficial than a warm one in the morning, for it stimulates and invigorates the body, puts the skin in a glow, improves the circulation,

and acts as a safeguard against colds and other diseases which result from a lowered vitality. A cold splash on the face, neck, and chest should be the rule for even the most sensitive. At least twice a week, take a warm bath, using plenty of soap. The best time for it is just before going to bed at night.

Teeth. — The mouth and teeth should be thoroughly cleansed every morning. Wash out the mouth and gargle the throat. The teeth should be well brushed with a moderately stiff brush and an antiseptic powder, paste, or liquid. Spend most of your effort on the places you cannot see, and brush up and down, as well as along the row of teeth.



Good teeth and happiness
are likely to go together

Nose. — If you are obliged to work in dusty places, the nose should be washed, morning and night, with warm salt water, a half teaspoonful of salt to a cup of water. If you have any trouble in the nasal passages, a physician will tell you how to use a nasal douche. But it is a simple matter to pour into the nostrils a spoonful or so of clean water and blow it out again. Be careful not to swallow while you are doing so, for the water may enter the passage which leads from the throat to the ear and cause serious trouble.

Dressing. — After you have drunk a glass of water, dress yourself quickly but carefully. Don't dawdle and don't rush. It is a good plan to brush and clean your clothes and lay them out at night so that you can put your hands on them at once in the morning and thus lose no time in hunting out a clean waist or shirt, the fresh neckpiece, or the missing collar button. To be obliged to stop and look for something, to sew on a button, or to replace a broken shoe lace, does not help in "starting the day right."

Brush and arrange your hair before you put on your coat or waist, as it certainly detracts from a tidy appearance to have hairs clinging to the clothing.

Be sure that your nails are trimmed and clean. It takes but a moment to do this, but the moment's care will add greatly to your appearance, as well as to your self-respect. Before leaving the house, see that you have a clean handkerchief with you.

Wear clothing that is comfortable, appropriate for the work in hand, and suited to the weather. While your work clothes should be becoming and of as good materials as you can afford, they should be free from "frills" and eccentricities of style. The question of clothing suitable for certain kinds of work and for the different seasons of the year will be taken up in greater detail in succeeding chapters. It is sufficient to point out here that the simpler and more businesslike your clothing is, the more quickly you can get into it in the morning.

Breakfast. — Breakfast need not be a hurried meal with the wage earner. It is better to eat a little less food and chew it thoroughly than to wash down quantities of half-chewed food with coffee and tea, which cannot be digested

readily and will cause trouble later on. By eating slowly, even the coarsest food tastes good ; you will get more pleasure and benefit from it ; and you will find that you do not need so much. Stop eating as soon as you have had enough. No one can say how much another should eat, as it is not how much we *eat* but how much we *assimilate* from our food that makes it nourishing. This must be a matter of individual judgment, although we know that most of us eat entirely too much and that intemperance in eating causes much illness.

In order to get the best results from it, it is important that food should be clean, fresh, and nourishing. This does not mean that it must be expensive. A breakfast of fruit, cereal and milk, with bread and butter, will give you more energy for the day, and do you more good than a meal of meat and fried potatoes and one or two cups of muddy coffee. Coffee and tea are only whips, and have no food value in themselves, except in the sugar and milk which are usually added to them.

Water and milk are the best beverages, although the latter should really be considered as a food.

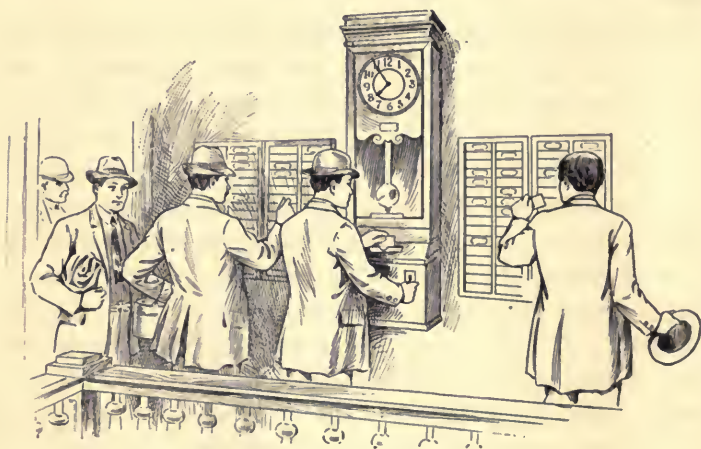
Rise from the breakfast table clear-headed and feeling that your food has given you working power, rather than heavy and stupid, as a result of improper eating.

Going to work. — Try to get away after breakfast in time to avoid rushing. Too violent exercise, like running to catch a car, immediately after eating, should always be avoided. If it is at all possible, walk to your work.

The most beneficial forms of exercise are those that can be taken in the open air. For this reason, apart from outdoor games and sports, walking is at once the best, most

convenient, and cheapest exercise for the wage earner. If distance or the weather makes walking to your work impossible, you should certainly get out of doors for a brisk walk at the lunch hour, if only for a few minutes. If you feel chilly or cold when walking, take a few long, deep breaths, which will help to quicken the circulation of your blood and make you warm.

Walk with your head high and your chest up, with the feeling that you are looking the world in the face. Nothing



On time — and better!

will so quickly drive away “the blues” on a bad morning, or increase your stock of courage and self-confidence.

Make it the rule of your business life *to be on time*. Delays are very often unavoidable, especially in the city, where the traffic conditions at the rush hours are responsible for much loss of time and, sometimes, of temper. But it is much better to start a little in advance of the actual time required

for the trip to your work, than to run the risk of being delayed in reaching the shop or office. Always make up any time you have thus lost in the working day, by coming earlier the next morning, by "docking" yourself at your lunch hour, or by staying later in the evening — anything to make your account good, whether it is noticed by your employers or not. It is the "keeping square" with yourself that counts, adds to your self-respect, and enables you to do honest work, the kind of work that invariably leads to real success.

Habits which should become invariable. — Make a placard of the following routine and hang it up where you can see it every morning:—

REGULAR MORNING ROUTINE

1. Have a set time for rising and throw the bedclothes over the foot of the bed not a second later.
2. Take the breathing and setting-up exercises.
3. Cold splash on the face and chest at least; then a brisk rub with a rough towel.
4. Clean the mouth; brush the teeth, get into all the corners.
5. Drink a glass of water.
6. Visit the toilet and wash the hands afterward.
7. Make your regular inspection of your appearance.
(See Chapter I.)
8. "Work well begun is already half done."

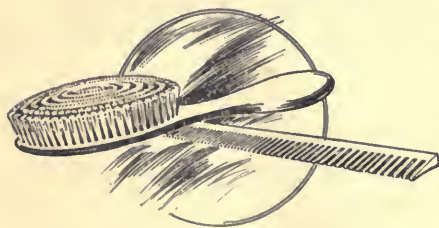
CHAPTER III

GOOD HABITS FOR THE WORKER

Forming good habits. — The importance of good health and a neat appearance as factors in success cannot be over-estimated. In a general way, the employer's point of view in selecting his work people has been considered, but for those who realize that an improvement in health and personal appearance is necessary before seeking positions, it will be well to put into practice at once those habits of care and cleanliness that will result in increased efficiency and self-respect. Incidentally, one of the most important habits a worker can form is the use of good English and the avoidance of slang.

Hair. — Starting with the hair, which is at once a protection and an adornment, we notice that in very many

cases it is grossly neglected. The hair should be kept clean and well brushed. The brushing is important, because it brings the blood to the scalp and distributes



over the hair the oil that is secreted at its roots. This makes the hair glossy and gives it a good appearance. The oil, however, should not be allowed to remain on the

hair and scalp, and mix with the dust and impurities of the house and street, until the hair becomes heavy and greasy. It should be thoroughly washed with good soap, green or castile, at least once a month, and the scalp massaged in order to remove the dirt and scales that may be clinging to it.

Persons whose hair is naturally oily can afford to wash it more frequently than can those whose hair is light and dry, for the latter condition shows that the scalp is deficient in the natural oil. Brushing and massaging the scalp will be of especial benefit in this case to increase the circulation; it is also well to rub in a very little pure vaseline occa-

sionally at the roots, but not in such quantities as to make the hair greasy and sticky.

Dandruff may be cured by washing the scalp and rubbing in thoroughly a little thirty per cent sulphur ointment.

Avoid wearing very heavy hats or those that fit too closely, for they are responsible for many headaches in



Washing the scalp

women; while tight, unventilated hats cause premature baldness in many men.

Eyes. — If you have any doubt about your eyesight's being of normal keenness and efficiency, it will be well to consult a first-class oculist without delay.

If you are obliged to strain your eyes to see objects clearly and to hold your book uncomfortably close while reading, or if you suffer from blinding headaches and nervousness resulting from eyestrain, it is necessary for you to have glasses fitted to your eyes to correct these defects of vision.

People who have been suffering from nervousness, stomach disorders, and a general condition of poor health, frequently have found these troubles to disappear when they have been fitted with proper glasses.

In many kinds of work requiring close application and accuracy, it is extremely important that the vision be keen and sure. So good eyesight becomes a commercial asset also.

There are many ways, however, in which the eyes can be helped while working or reading. The importance of good light in the workroom will be discussed later on, but it is well to suggest here that one should never attempt to read after sundown while darkness is coming on, nor face a very bright light while reading or working. Endeavor to have the light come from behind and above you, and, for writing, to have it come from the left side. Avoid looking directly at artificial lights, as these put a great strain on the eyes. Occasionally rest the eyes while working, by closing them for a minute or two, by looking out of the window, or by focusing them on some distant object.

If the eyes are weak and inflamed after the day's work, it is well to cleanse them with a solution of boracic acid, —

the water will never take more of the powder than it can hold in solution.✓ Use an eyecup for this purpose and have the water warm.✓

Later on, we shall discuss the spread of germ diseases, including those of the eye, through the use of the public towel, and the importance of guarding ourselves against this danger.

✓ **Teeth.** — Good teeth and a clean mouth are also essential to the success of the wage earner. The president of a large steel company recently made the statement that, under no circumstances, would he employ a young man with diseased teeth.

Unclean and decaying teeth seriously affect the health of the worker, for they serve as breeding places for all kinds of bacteria that become mixed up with the food and finally



reach the stomach and intestines, where they cause fermentation and lead to bodily weakness, if not to actual disease.

In addition to this danger, a greater burden is laid upon the digestive organs, when the food is not properly broken up in the mouth and well mixed with the saliva — the first and perhaps the most important step in the process of diges-

tion. This can be done only by thorough mastication, for which good teeth are necessary.

Apart from the wear and tear of a lifetime or diseases that have weakened them, the decay of the teeth is primarily due to carelessness and uncleanness. The mouth should be cleansed and the gums and teeth brushed every time they are used, if possible, but at least on rising, after breakfast, and before going to bed. Sticky deposits may be removed by running a bit of silk or dental floss about and between the teeth.

When a tooth begins to decay, it should be filled at once. As we are not always able to determine for ourselves when this happens, it is wise to visit a good dentist once or twice a year. Have a settled time for doing this and never put it off.

Nose. — A good many people overlook the importance of keeping the nasal passages clean and unobstructed. If there is any serious obstruction and one has reason to believe that he is suffering from adenoids or any foreign growth in the nose, a physician should be consulted and the obstacle to proper breathing removed. Mouth breathing usually results from a condition of catarrh or adenoids and seriously interferes with the health of the body.

The nose has several important functions to perform. As the organ of smell, it protects the body from inhaling impurities in the air, poisonous fumes, and gases. The muscles of respiration begin in the nostrils. The nose serves to warm and moisten the inhaled air, and also acts as a filter to prevent germs and dust from passing into the throat and lungs. We must breathe through the nose if we would breathe properly and give the body the air it needs.

Breathing. — The majority of people, especially those in cities, have never learned how to breathe properly; their bodies are literally starving for air. The special office of the respiratory organs is to put oxygen into the blood and to keep it pure. In deep breathing, a plentiful supply of oxygen is drawn into the system, and the thoroughly exhaled breath keeps the balance true by carrying off large quantities of the poisons and wastes of the body.

In shallow breathing, the blood does not get the oxygen it needs to do its work of carrying fresh and pure materials to all the cells of the body; the cell tissues therefore are impaired or break down, and the general health suffers.



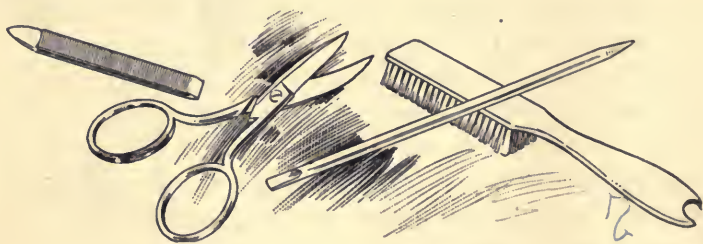
Test each nostril

Correct breathing is frequently interfered with by the manner in which one holds his body, or by clothing that is too tight. When the shoulders are habitually stooped, the lungs are crowded and cannot be filled with fresh air. Some of the air cells become inactive, and, finally, diseased. Clothing that binds the walls of the chest and the abdomen, preventing them from expanding freely, is injurious. The body should always be carried erect, with the head held high, the chin and abdomen drawn in. In order to stand properly, comfortable, well-fitting shoes should always be worn. In sitting, the spinal column should be kept straight and the shoulders even. Do not stoop over

your work, so that your heart and lungs are crowded close together.

Deep breathing exercises are very helpful to the worker and require but a few minutes' daily practice. It is especially beneficial for workers employed in factory, shop, store, and office to cultivate the habit of holding the head erect and breathing deeply whenever they can, especially as they go to and from their work.

Hands and nails. — Clean hands and finger nails are also factors in success. Not only is there an instinctive prejudice



against the person who goes about with grimy fingers and with his nails dirty, but clean hands are a protection against filth and germs that may be carried into the body, while taking up food, or touching the mouth with the fingers. Inflammation is frequently caused by scratching the skin with dirty finger nails.



Nails may be easily kept clean if they are worn short. They should be allowed to grow long enough to protect the ends of the fingers, but not so long as to permit dirt to collect under them, or to run the risk of being broken and split. The hands should always be washed before eating.

Feet. — The feet should be washed every day. Comfortable stockings, without holes and seams to irritate and chafe the feet, should be worn, and changed frequently — especially if the feet perspire greatly. Wear shoes that fit and do not tire the feet, or produce corns or callouses. Thin-soled shoes do not afford sufficient protection against cold and dampness. If you are caught in the rain, change your wet shoes and stockings as soon as possible, and avoid the danger of chilling the body and developing colds.

Bowels. — It is highly important to one's health that the bowels move freely each day. If the wastes of the body are retained longer than this, their poisonous impurities get into the blood and lead to a train of evils. Among sedentary workers, especially, there is a tendency to constipation, which must be counteracted by a greater attention to exercise (particularly of the type given in Chapter II), by drinking plentifully of pure water, and by eating foods that contain more refuse matter, such as vegetables, whole wheat or graham breads, fruits, and other materials that cause the wastes to be easily eliminated.

Sleep. — To the wage earner, a proper amount of rest is as essential to health as food, water, and air. The nervous system, especially, is in need of rest after the wear and tear of the working day, and there seems to be no way by which the delicate organisms of the body can be restored, except through sleep.

Sleep is a mysterious process, about which we know very little, except that during the period of unconsciousness the muscles relax, the nerves are at rest, and most of the cell waste that results from the activities of mind and body is stopped; and, if sufficient time is allowed for the process of

repairing the worn-out cells, they will be built up for the next day's work.

Without sufficient sleep the health will suffer. If we were not permitted to sleep at all, we should die.

In this connection, it is well to speak of the benefit resulting from observing regular hours for rest and sleep. If the body is accustomed to being put to bed at a certain hour every night, the habit of sleeping at that time becomes fixed, and one drops off to sleep easily and naturally. Social engagements, entertainments, late suppers, excitement, worry, and everything that prevents the body and brain from getting the needed amount of sleep, should be avoided, especially in the case of workers who must rise at an early hour. Ordinarily, the body requires at least eight hours of sleep.

Sleep and air. — It has been demonstrated that out of doors less sleep is required than when one is sleeping in a closed room. This is due to the fact that the process of rebuilding goes on more rapidly when more oxygen is taken into the system, as is the case when one sleeps out of doors. The need of oxygen in the rebuilding of the cells is imperative. So it is well, if you cannot sleep out of doors, to have plenty of fresh air circulating through your room at night. If you have but one window in your room, pull it down from the top and up from the bottom, so that the foul air may go out and the fresh air blow in. Never mind the cold; put on more covering if necessary. Sleeping entirely in the open air is best, and any one can be almost out of doors on a sleeping porch or by using a window tent. (See page 218.)

Better rest is secured through sleeping alone and in a

comfortable bed. If your bed is narrow and the cold seems to come up from the floor, it is a good plan to cover the springs under the mattress with a thick pad of paper — newspaper will do for the purpose. This will help to keep the body warm and comfortable. Warm bed clothing need



Getting fresh air at night

not be heavy. Very heavy covering often tires the body, and one rises feeling languid and unrefreshed. (The pillow should always be low; a very high pillow bends the spinal column to one side, interferes with proper breathing by cramping the organs, and frequently causes disturbing dreams) The bedclothes should be aired every day and exposed to the sunlight as often as possible.

(At night, after getting into bed, lie upon your back and stretch your arms and legs as far as possible. Then relax and take ten deep, long breaths, exhaling slowly but completely. This will be found helpful in composing the mind and body for sleep, if you are restless.

When we consider that one third of our lives is spent in sleep, it is wise to make the conditions for complete recuperation the very best possible, and to allow nothing to interfere seriously with the intelligent cells in their nightly task of building up the body for the next day's work.)

EVENING ROUTINE

1. " After dinner rest awhile."
2. Spend the evening as profitably and pleasantly as possible ; do not steal to-morrow's energy and waste it on questionable fun.
3. " Early to bed and early to rise makes a man healthy, wealthy, and wise."
4. Wash to get clean; use hot water and soap, scrubbing brush and washcloth; wash the face, neck, ears, arm-pits, and hands, at least.
5. Splash with cold water the face, neck, and chest, at least ; take a brisk rub.
6. Brush the teeth and clean the mouth, using dental floss between the teeth.
7. Visit the toilet and wash the hands afterward.
8. Lay out the clothes for the morning ; hang them so that air reaches all sides.
9. Open the windows, top and bottom.

CHAPTER IV

SUITABLE CLOTHING

Work clothes. — Clothes, first of all, should be comfortable and should not interfere with the activity of the worker. If you are obliged to use your arms and hands constantly, reaching and stretching a great deal, it is evident that sleeves should be worn that do not bind the arms and seriously hinder your movements. Besides interfering with the speed and, consequently, the output of your work, they lead more quickly to fatigue. This may be said of any clothing that cramps the muscles, keeps the blood from circulating freely, and causes the wearer to work under difficulties.

A great many accidents to women workers have resulted from the wearing of high-heeled shoes and narrow skirts. Such garments as these, during work hours, are positively dangerous and no safeguard can be found against them, except the common sense of the workers themselves.

So frequent have such accidents become among travelers, that the Pennsylvania Railroad will no longer pay damages to any one injured in getting on or off their trains, if it is proved that high-heeled shoes or tightly fitting skirts were responsible for the injuries received.

Appropriate clothing. — There is no reason why the worker should not present a neat, businesslike appearance, without thinking it necessary to dress in elaborate, inappropriate garments that may prove to be dangerous, as well.

If you are working in an office, of course your clothing need not be quite so plain and practical as when you are working in the factory or shop, because, in the latter places, not only are your clothes subjected to more dirt and strain, but you yourself may be exposed to certain dangers that are greatly increased by the kind of clothing you wear.

Tight clothing of any sort is unsuitable for the busy worker, but running to the other extreme of loose, thin garments may prove just as much a menace to health and safety. Women workers are more apt to be careless in this respect than men and boys. A business woman should not go to her work so thinly clad that she is blue and shivering all day. Very thin waists are, at best, inappropriate for work; but while there may be some excuse for wearing them in midsummer, they are too light for wear in the winter time, as good health depends so much on keeping the body uniformly warm. In cold or wet weather, therefore, see that your legs, feet, arms, and body are well protected.

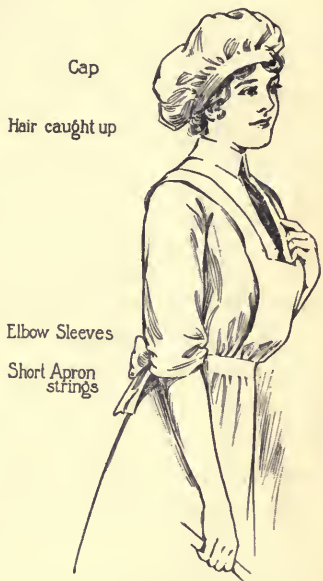
Cautions for the machine worker. — If you happen to work on a machine or near swiftly moving belts and wheels be careful never to wear loose sleeves, a flowing tie, or any frayed, torn garments that may catch in the moving parts of the machinery. Many workers have been caught in cogs, or whirled to death around shafting, through such simple things as these.

An insurance inspector tells the story of noticing on one of his visits to a certain factory a set screw which projected from a revolving shaft and which he considered very dangerous because the shaft was near a passageway, through which the workmen were obliged to walk. When he called

the manager's attention to the danger and suggested that some one would get hurt if the screw was not cut off or sunk into the shaft, the manager treated the matter lightly. "Oh," he scoffed, "that screw has been like that for years. Every one can see it, and the fact that it is exposed makes it impossible for an accident to happen." He had a way of waving his arm as he spoke, and doing so this time, his loose sleeve caught in the projecting screw, and in an instant he was whirled to death.

The inspector uses the story to illustrate the danger of projections on revolving shafting and the necessity of guarding the dangerous parts of machinery; but it also demonstrates the need of a little caution on the part of the worker who is obliged to work in proximity to such dangers every day. Keep your sleeves well rolled up, or wear them short, if your work brings you close to the moving parts of machinery.

Clothes for women workers. — Women workers in factories should never be permitted to wear flowing sleeves or aprons with long strings, or to have their clothing of such light material that it may be blown into contact with exposed cog wheels, shafting, or belts running along the floor.



Appropriate and attractive clothes for the woman worker

Women and girls are also in grave danger of being scalped, if they wear their hair loose and unconfined while working at machines running at high speed. Many serious accidents



Making a sleeve protector of paper

of this kind occur frequently in factories. Therefore, girls and women should wear caps, made of light, washable material, that completely cover the hair, preventing it from coming in contact with the machinery, or from being drawn into it through the electricity that is generated by the friction of the moving parts. The work apron should be heavy, not only to protect the dress from the grease and dirt of the machines, but also to keep the skirts from catching in them. It should have short strings, with no loose ends.

In the office or for any light manual work, sleeve protectors may be worn by women workers, as coarse or fine as the work demands or the taste of the wearer dictates. These will prove to be a great economy, keeping waists fresh and clean for a longer period and also saving them from wearing out too quickly.

Clothes for the machinist. — It is possible for the young man working in an office to wear collars and cuffs, whereas



The worker dressed for the shop

the machinist can dispense with them. In the latter case, he is better clad for his work if he wears a flannel or dark wash shirt, the sleeves of which can be easily rolled back, and trousers of strong, serviceable material. There is no reason, however, why he should not put on a collar with his coat, at the close of the day's work, adding to his personal appearance, as well as to his self-respect, when he passes on to the street from the shop.

Linen. — The wearing of clean collars and, sometimes, cuffs, should not be considered an extravagance or a sign of foppishness on the part of the young worker. The small amount of money spent in having linen laundered, if it is not done at home, does not begin to compare with what can be wasted on cigarettes in the course of a week.

Don't, however, wear celluloid collars with the idea that they are economical and look just as well as the other kind. They may be cheap, but, too often, the wearer forgets to clean or change them as frequently as necessary, and they become very dirty and unsanitary, and may prove dangerous if they happen to scratch or chafe his neck. Besides, celluloid collars are always dangerous if brought very close to a flame, and many a boy or man has been badly burned when the head of a match has flown against his collar, setting it ablaze.



The worker dressed for the street

Shoes. — The feet of the worker are just as important as any other part of the body and demand just as intelligent care. In fact, a healthful condition of the feet is closely connected with a sound condition of body, nerves, and brain, and, consequently, with the happiness of the individual. Fatigue and nervousness are more often due to tired, aching feet than to any other cause.

Shoes, especially the shoes of the worker, should be strong and comfortable. They should be kept clean and neat. A worker may find that so simple a thing as keeping his shoes well brushed sometimes leads to a promotion that remains

a mystery to his fellow employees, whose work, apparently, is just as good, but whose appearance is less tidy.



This shows a foot distorted by a pointed shoe and a foot in a comfortable shoe of natural shape

Thin-soled shoes do not afford sufficient protection for the average worker, particularly when he is obliged to stand and

work for hours in a cold, wet, or drafty place.

Results of ill-fitting shoes. — The worker should wear shoes that fit and do not tire the feet. Do not try to make your feet fit shoes that are a size or so too small for them. Tight shoes and stockings hinder the circulation of the blood in the feet and legs, and crowd the joints and muscles so closely together that the nervous system suffers a strain and shock that is as cruel as it is unnecessary. Heels too

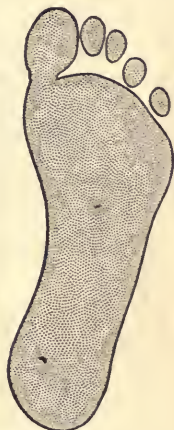
high or too low may weaken the feet; pointed toes and narrow lasts are responsible for corns and bunions; and the condition known as "flat-foot" or broken arch is due to the wearing of improperly made shoes, or to the fact that the worker is obliged to be on his feet all day long.

Heels much too high or placed under the arch of the foot, throw the body into such an unnatural position when walking or standing, that other muscles and organs besides the feet are seriously affected. A curious case of this sort came under the observation of a surgeon who discovered, after many experiments, that an obstinate eye trouble was directly due to wearing badly made shoes.

Flat-foot. — Physiologists tell us that a high-arched foot can



Normal foot



Flat-foot

be naturally developed and kept in shape by exercise in walking. The English people are great walkers, and that is why, it is said, so few are flat-footed.

Special exercises and artificial helps are necessary if our feet are to be kept normal and we find it impossible to do much walking every day. The practice of rising on the toes for a few minutes each morning, bearing the body's weight toward the outer edges of the soles, has been suggested by foot specialists, both as a cure and as a preventive of flat-footedness.



Exercise 1

The signs of flat-foot are: the foot turned out, a low and tender arch, and pains in the heel, calf, hip, or back. The defect should be treated by standing, toes in, with the weight resting more on the toes. When walking, "toe in" a little and press on the toes as the foot leaves

the ground. If special exercises are needed, the following are recommended to be performed once a day:-

1. Rub and knead the foot under the arch, pressing up with the thumb and bending the toes down with the fingers.
2. With the toes turned in a little, raise the heels high ten times.
3. Rock back and forth on the outside



Exercise 2

of the feet, with the soles turned toward each other, ten times.

4. Turn the toes in and walk forward ten steps on the outside of the feet, lifting the heels high, ten times.
5. Rub and knead the foot as suggested in the first exercise.

Do these exercises (2, 3, 4) twice the second day, three times the third, and so on until you run through the series ten times a day. These should be continued until the weakness has entirely disappeared.

Special shoes. — Persons suffering from corns, enlarged joints, and bunions, and serious cases of flat-foot, need special shoes to correct these evils, and they should make it a point to get those that



Exercise 3

provide sufficient length and breadth for the toes, and fit closely at the instep and heel. When necessary, the shoes should be braced to give special support to the arch and instep.

Certain occupations demand shoes that give more than ordinary protection.

Many laundry workers suffer from "flat-foot" and varicose veins, to relieve which special shoes and elastic stockings should be worn at work. For outdoor work, one should wear shoes that are thick-soled and heavy enough to keep out the cold and wet.

CLOTHES FOR THE WORKER

1. *Underclothes*.—Wear linen mesh of different weights next to the skin all the year round; cotton is next best. If necessary, wear wool on top of the linen mesh; or light wool for winter. Change at night.
2. *Corsets*.—Unnecessary if the muscles of the waist are strong. They may be tight below the waist *only*.
3. *Collars*.—Neither tight nor high.
4. *Shoes*.—Comfortable and well fitted.
5. *Hats*.—Soft hats are better than the hard derby, which presses on the scalp.
6. *Outer Clothing*.—When buying clothes, consider the following points:—
 - (a) *Durability*.—How long before you will have to replace it?
 - (b) *Comfort*.—Do not buy anything that will be a continual discomfort, even if it looks well.
 - (c) *Style*.—Simple things are always in style. Striking clothes often outlast their appropriateness.
 - (d) *Warmth*.—Good material is more important than appearance.
 - (e) *Appropriateness*.—Is it suited to your work and age?
 - (f) *Economy*.—Can you afford it?

CHAPTER V

FOOD AND DRINK

One is largely what he eats and drinks. — The old saying of the philosopher, "Tell me the company you keep, and I will tell you what you are," could be changed into, "Tell me the food you daily put into your mouth, and I will tell you the condition of your body and the ailments from which you suffer."

This is, of course, from the physical standpoint only, but some food scientists have gone so far as to say that the kind of food one eats finally acts upon the brain and moral nature, so that, given a certain diet for a certain length of time, a great deal of human weakness and meanness would be corrected and many crimes would be prevented from taking place.

The body an engine. — The body is very much like a steam engine, which needs good fuel and plenty of it in order to get up a good head of steam. The food and drink that go into the body may be considered as fuel, which will be turned into power, or energy, to move, to think, and to work.

Carrying out this idea, we may look upon the air that is breathed into the body as the drafts which regulate the heat and help to burn up the fuel, and the wastes of the body as the ashes and clinkers which must be raked out and not allowed to clog the furnace.

It has been said that one puts into his mouth his weight in food and drink each month. But there should be a balance between what one takes in and uses in warming and repairing the body, and what passes off from the body as useless waste. Not to eat enough, or, as happens in many cases, not to get enough from the food eaten to make good blood, tends to make the body weak, if not actually ill; while, on the other hand, it is just as bad to take into the body more than it can use and so keep it clogged and poisoned with waste. Plenty of exercise, fresh air, and the habit of drinking an abundance of water every day will help to shake down the ashes and keep the body in the best condition for using the fuel that is given it.

How much food. — It is impossible for one person to tell another just how much food he should eat each day, for exercise and very active work make it necessary to spend a greater amount of bodily heat and energy than are called for when the body is resting or engaged in lighter tasks. The size and particularly the age of the person must also be taken into account. A child demands more tissue-building foods than does the person who has stopped growing and who needs only enough of them to repair the cells that are worn out during each day.

Every one needs food that keeps the body warm. Keeping the body at an even heat, not too hot and not too cold, is necessary to health and comfort, for we are continually giving off heat to the surrounding air. Food is also needed to repair the wear and tear upon the muscles and hard-working organs of the body. In addition to the foods that warm and repair the body, we need food that will give an extra amount of strength and energy which may be used in think-

ing, playing, or working. So you see we must consider what food we should eat, how we should eat it so that it will do the most good, and last but not least, we must be sure that the body machine is not clogged by the waste that is renewed daily.

In general, those who are still growing need the most to eat, the young man and woman somewhat less; the old man should eat still less and very carefully.

The more exercise one takes, the more food is needed. A clerk needs less than a laborer, but he needs to be more careful in his eating.

Choice of food. — The question of diet is attracting more and more attention. What to eat and what to drink to make the body more efficient is being studied and discussed by many scientific writers. Nearly all of them claim that we eat too much, but that of course depends on the class of people and the kind of work involved.

While a great many people may be suffering from intemperance in eating and drinking, it is safe to say that a great number of persons in this world do not get enough to eat, or at least not the kind of food to give them health and strength.

Quite apart from the theories on this subject, the question of diet should be of interest to every wage earner, as not only his health, but his efficiency and success may depend largely on the food he eats.

The cost of food is something the wage earner should consider. Sometimes we think we cannot get the right kind of food, because it costs too much; but this is a mistake. Good, nourishing food, if carefully selected, need not be expensive. The average American worker is the

most extravagant buyer of food in the world, probably because he knows so little about what food is of most value to him.

The body is made up of at least fourteen elements, which are well-known in chemistry, but which need not be discussed here, other than to say that all of them are necessary to the body and blood and must be taken in with the air we breathe and the food we eat.

That is why a varied diet is the best to follow, and when we look around and see all the articles of food that have been so plentifully supplied by a wise Providence, we find none of the needed elements wanting. Moreover, we can find the fourteen elements in very simple foods. For instance, a grain of wheat contains all of them.

A few general hints and suggestions may be helpful in the selection and combination of simple foods.

Foods are usually classified under these three headings: proteids, carbohydrates, fats.

Proteids. — The living portions of the body, the organs, heart, lungs, liver, etc., and the muscles, are made of proteid material, and therefore when the body needs to grow or to be repaired, as it must constantly be, we need proteids to provide the material.

Of course, while we are growing we need much proteid. As we grow older, we need less and less. Again, those who do the hardest muscular work and use up much of the structure of the body need more than those who do not work so hard.

Meats and eggs are the most usual forms of proteids; fish, beans, peas, lentils, and cheese also contain a great deal. Proteid food is the only kind that contains nitrogen,

and, therefore, is the only food that contains all the elements of which we ourselves are composed. So it is absolutely essential to life. In this country, almost every one



Proteid foods

eats too much meat. Twice a day is enough for any of us and once a day for those who are middle-aged. Eating too much meat and other proteids causes headache and finally rheumatism in some form or other. This is where the worker can economize, for meat costs more than anything else, and too much does a great deal of serious harm.

Carbohydrates. — The heat and energy of the body are secured mostly from the carbohydrates and fats. Carbohydrates are also called the starch and sugar diet, which should make up the largest part of our daily food ; but the body cannot make good use of most of this starchy food



Carbohydrate foods

until it has been changed into a form of sugar by the saliva in the mouth. Hence we should chew the food enough to give the saliva a chance to mix thoroughly with it.

In the carbohydrate class are found all the grains (wheat, oats, corn, rye, buckwheat, rice), potatoes, macaroni,

bananas, dried fruits, and all kinds of sugar. Most of the vegetables may be put in this class, although they often



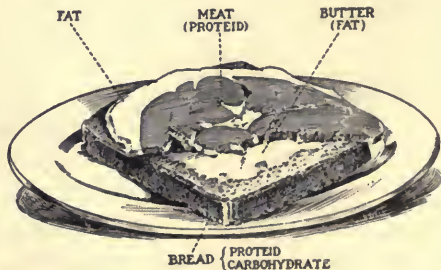
Fat foods

contain a little proteid and fat, so that one could live entirely upon vegetables if he so desired.

Fats. — The fat foods are principally butter, lard, olive oil,

cream, etc., although many foods containing much fat may be included, as milk, cheese, pork, ham, bacon, and nuts.

A mixed diet is natural. — It has been said that the average person should not eat more than four ounces of the proteid food each day, and that three ounces of the fats should be eaten. Many people eat much of their fatty food in the form of butter on their bread. Every one should eat a good supply of the starch and sugar foods, unless one is stout. Then, these foods may be used sparingly. On the other hand, if one wishes to gain in weight, a diet of the starchy foods, sweets, and milk will soon fatten one. All these three kinds of food are necessary to health, and we instinctively desire just about the proper proportion. We seldom make a meal of only one kind. For instance, a sandwich contains pro-



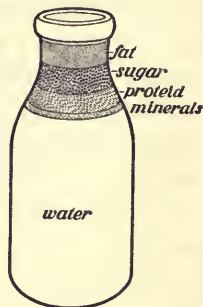
Food elements in a sandwich

teid in the meat, cheese, or egg, carbohydrate in the bread (which also has a little proteid), and fat in the butter and perhaps on the meat. Bread itself contains all three kinds of food, but is deficient in fat, so we naturally make it up by spreading butter upon it.

Vegetables. — We must be sure that we eat enough food not only of value for the fats, proteids, and carbohydrates it contains, but for the apparently useless waste in the form of fiber that naturally goes with it. The stomach and intestines work best when there is enough coarse, indigestible matter to stimulate them to activity. Hence, we must be sure to have in the day's list of food green vegetables like lettuce, turnips, squash, tomatoes, spinach, and fruit. Neglect of this rule causes constipation, and constipation causes headaches, indigestion, colds, and is at the root of most of our illnesses.

Milk. — Of all the foods, milk may be said to be the most complete. It contains all the materials needed by the body: the fat, the sugar, and, in the cheesy part of milk, the proteid or albumin, found in eggs, fish, and meat. In addition, milk contains some valuable salts which are useful in making bone. If it were necessary to do so, one could live for a time on milk alone, and this is why it is a perfect food for children. All of the other foods need to be taken in combination with something else in order to get the various kinds of elements needed and to make them palatable.

It is because milk is unclean and full of germs or has been



A bottle of milk showing the proportions of water, fat, sugar, proteid, and minerals. (After Davison.)

spoiled by standing or given in unclean nursing bottles, that so many babies are made ill. It should always be remembered that stale, dirty milk is dangerous. Many physicians advise that milk be heated, "pasteurized," not boiled, in order to kill the bacteria and to run no risks of injuring babies; but if the milk is clean and pure and not thinned with water, it need not be sterilized.

Most of the cities are now inspecting the milk that is used, and dairymen and dealers are not allowed to sell impure milk if the inspectors know about it; but it would be well to find out, each one of us, just where our milk comes from, to be sure that we are getting the best. Don't buy milk "loose"; that is, from the dirty cans that are kept in grocery stores, open to the dust and flies, and which are seldom kept cool enough to prevent the milk from spoiling.

Water. — As the body, in normal health, is two thirds water, it needs a plentiful supply of water every day. Apart from the liquid contained in our food, we need to drink one or two quarts of water daily. If, besides water, we drink tea, coffee, cocoa, or chocolate, they should not be made too strong or rich. We should do without coffee if we can, for it often causes indigestive headaches and rheumatism.

Pure water, the drink that has been provided by nature, is the best beverage. We need water to distribute the food and warmth throughout the body and to wash the waste out of every nook and corner. The best time to drink water is before and between meals. A half glass of water during the meal is often an excellent thing. The disadvantage of drinking water at that time comes only from drinking too much and using it to wash the food down instead of chewing it.

Wholesome food. — In addition to food values, the wage earner needs to be interested in the wholesomeness of food and the manner in which it is prepared for the table.

In 1910 the Department of Health of New York City condemned and destroyed as unfit to eat, 565,074 pounds of fish, 1,880,772 pounds of meat, and 12,137,375 pounds of fruit — a grand total of 14,583,221 pounds. This enormous total shows how the idea of pure food is taking hold of our minds, and represents a wonderful saving in life and health to the community.

Cooking. — Food should be appetizing. In many households, good foods, particularly meats, are spoiled by cooking until they are dry, flat, and tasteless. A great deal of discontent in our families might be avoided, if the housewives selected food carefully, prepared it nicely, and served it in an attractive, tempting manner. The ill-fed body is restless and unsatisfied and likely to crave stimulants.

One need not buy the expensive kinds of meat. The cheaper grade of steak, if well beaten and cooked, not fried, in a very hot pan, over a hot fire, and turned quickly to sear the meat and keep in the juices, may prove a much better steak than the high-priced ones that are served in the restaurants. A pot roast may be made delicious when cooked in an iron pot on top of the stove and turned frequently, in a little water at first, to keep it from sticking fast to the pot. When, later, more water is added for the soup and soup vegetables, one has a complete dinner in a single pot, at a much less price than a regular roast would have cost.

Nourishing soups may be had from cracked soup bones,

and made appetizing by the addition of vegetables and savory herbs. Clear soups are not nourishing.

Vegetables may be ruined in the cooking, or prepared so that the natural salts and flavor are not retained. Some vegetables are best when eaten raw, as celery, radishes, etc. The cooking of green vegetables should be begun in boiling water and salt added when they are about done. Vegetables should be served as soon as cooked and should not be allowed to stand in the cooking vessels.

Potatoes, peas, green beans, asparagus, and other delicately flavored vegetables, should be cooked in less water than the stronger ones, such as cabbage, onions, turnips, and carrots, whose flavor may be softened by changing the water during the cooking process.

Potatoes are more nourishing and digestible when baked, boiled, or mashed than when fried. Beans, peas, and lentils, when dried and then cooked, are cheap substitutes for meat.

Wheat, oats, rice, and corn are all cheaper than meat and contain more food elements. As breakfast foods, these cereals may be combined with sugar, milk, or fruits to make them more palatable and to give variety to the diet; as desserts, they may be used in combination with sugar, eggs, fruit, or milk, and baked. When these cereals, in the form of breads, are combined with butter, cheese, eggs, ham, peanut butter, or nuts, they furnish a more substantial fare.

Buying. — By buying staple foods in quantities and perishable foods only when needed; by refusing to take stale meat, dirty and half-rotten fruits and vegetables, because they are "cheap"; by doing a little more cooking at home and less running to the groceries and delicatessen shops for

small quantities of prepared foods at extravagant prices; by selecting foods wisely and with a view to the needs of the body; by preparing them in an appetizing manner; by eating only what the body requires; and by chewing that thoroughly, — we would soon do away with a great deal of the hard times and high prices which at present so seriously affect the wage earner.

It is a striking sign of progress that our public schools are now teaching domestic science, and that our girls and young women are learning the economic, scientific side of cooking and housekeeping. They should be given every opportunity for development and practice in this branch of study, for the health and efficiency of our wage earners depend as much on “scientific management” in the kitchen as in the shop and office.

Importance of chewing food thoroughly. — As has been pointed out before, it is not what we eat, so much as what we make our own, and take into the blood to nourish us, that counts. Probably half or two thirds of what we now eat would be quite sufficient to nourish us, if we selected our foods carefully and took time to chew them thoroughly.

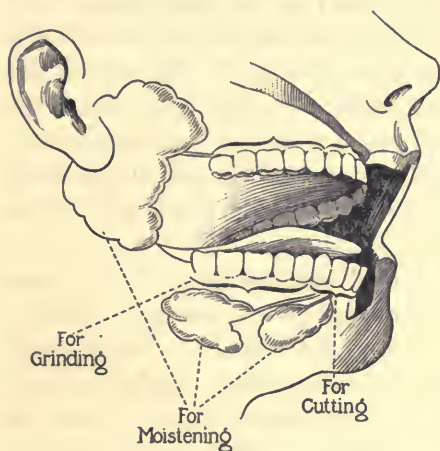
The mouth is really the most important of the digestive organs, for it breaks up the large pieces of food and, by aid of the saliva, prepares the food so that the stomach and intestines can manage it. These organs cannot do the work of the mouth; their work is entirely different. The stomach has no teeth.

Food should be chewed until it becomes a paste or liquid. Gladstone, the great English statesman, believed that his long life and health were due to his habit of chewing every mouthful of food forty times. Horace Fletcher, whose

system of eating for health is now widely known as "Fletcherism," cured himself of ill health of long standing, and built up his body so well that, at sixty years of age, he showed greater strength and endurance than young American college athletes.

This, he claims, was done by following a very simple diet, eating only when he was hungry, and thoroughly

chewing his food until it became a liquid in the mouth. Mr. Fletcher, who is what he calls a one third eater — eating only about a third as much food as is usually taken — took the Yale University crew work with the freshmen, who were all three thirds eaters. At the end of seven



The first processes in digestion

days' training, he had lost no weight and was in as good shape as when he commenced. The younger men, on the other hand, had lost weight, some of them had to rest from the work, and they were not in as good condition as when they started the experiment.

One of Mr. Fletcher's rules is: "Do not eat when you are mad or sad, only when you are glad."

This shows the close relation between the mind and the ability to digest food. It is a well-known fact that indiges-

tion will follow, if one eats when very angry or in great grief.

We may not go quite to the extent that Mr. Fletcher does in his belief that chewing food into liquid form will cure all human ills, but we are quite certain that we neglect this matter too much and that proper attention to it will be repaid in better health and longer life.

Thorough chewing does more than to break up the food and to help the saliva flow. It draws blood to the muscles around the mouth and leads to better formation of the jaws. People who chew their food thoroughly and also take plenty of exercise suffer little from digestive troubles and do not, as a rule, have appendicitis.

Even fluid foods may be "chewed," that is, held in the mouth and thoroughly mixed with the saliva. In this way, they not only will prove more digestible, but will be much more enjoyed than when gulped down. Because soups, milk, mashed potato, and cooked rice can be easily swallowed, a great many people do not chew them at all, and then wonder why their food does not "agree" with them.

The saliva itself, which flows abundantly as a result of chewing, helps to cleanse the teeth and is a killer of germs, or bacteria, which otherwise would pass into the stomach and intestines alive. This is the reason why so many people suffer from stomach and bowel troubles, particularly in the summer, when it is difficult to keep foods fresh.

REMEMBER

1. Good food is cheap and will taste as good as expensive food if you chew it long enough.
2. If forced to economize, cut down on meat.

3. Too much meat causes more headaches than does hard work.
4. Well chewed and digested carbohydrates and fats will keep one warm.
5. Green vegetables keep the intestinal tract and the brain clear.
6. Milk is the best food. He is wise who uses it.
7. Water is as necessary to life as air, and almost as cheap.
8. Hot, clear soup is a tonic to the stomach, — not a food.
9. Every one should know something about cooking.
10. Unchewed food is so much loss. It is the stomach's business to digest, not to chew.

CHAPTER VI

ALCOHOL AND TOBACCO

The source of power. — The power we have to do our day's work is the power generated within our bodies, just as power is generated in an engine, by the fuel consumed. The result is energy.

Everything that can be converted into energy is useful to the human machine. Anything that cannot be so used, or that detracts from the regular amount of energy, is a tax and burden upon the machine, even when it is not actually harmful.

Alcohol is not a food. — There are many articles of food and drink which the physiologists tell us are of little or no value whatever to the body in its daily work of manufacturing energy. But the most harmful of all these articles is alcohol.

A great many people have the notion that anything that causes the human machine to act more quickly, in other words, to create heat and energy by a shorter route than usual, is useful. But it is as great a mistake to believe this as to think we must always turn a strong draught of air into a fire to get heat. We get the heat, to be sure, but in doing so we burn up the fuel very quickly, and the fire frequently goes out when we need it most.

This is exactly what stimulants do to the food we take

into our bodies. We may get a false kind of energy for a while that seems to enable us to do our work better, but a reaction always follows; and, the next time, we find it necessary to take a little more of the stimulant in order to get the desired effects.

While it may be true that stimulants have an occasional use in cases of emergency and sickness, it is equally true that the person who has been depending on stimulants for a long while is unable to respond to them when the crucial moment arrives.

An acquired and dangerous habit. — Why do people think they need a stimulant at all? It is a well-known fact that the taste of any kind of alcoholic drink is very unpleasant to a young child. The taste for alcohol is acquired, totally unlike the taste for fruits, sweets, and wholesome foods, to which the young are naturally attracted. Alcohol does not really quench the thirst, as so many people wish to believe, but brings a greater thirst in its train and often leads to regular habits of drinking and intoxication.

It is only when people have wrong habits of living and do not eat a proper amount of nourishing food, or give their bodies a proper amount of rest and relaxation, that they feel the craving for stimulants. When nature calls for rest and food, they spur on the weakened, fainting body to greater exertion, through the excitation produced by beer or whisky.

If this should happen only once or twice, no great harm might be done, and we should not need to take up the question so seriously; but, if the practice is kept up, it soon becomes a very dangerous habit.

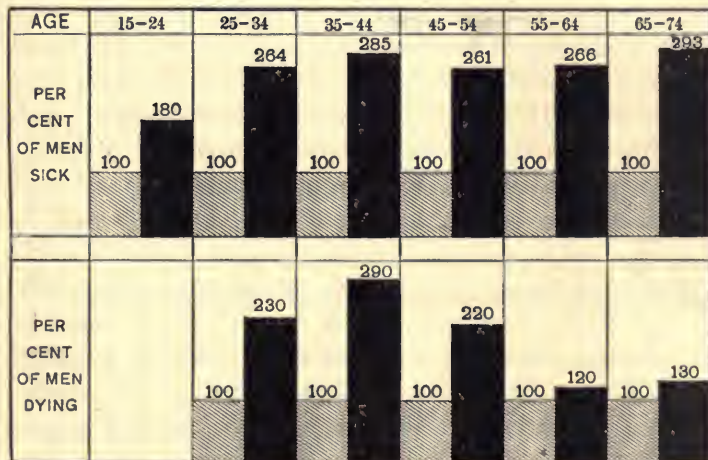
Alcohol and illness. — Not only does the use of alcohol lead to exhaustion and a gradual weakening of the nerves, but it also reduces the ranks of that wonderful little army of fighting blood corpuscles, or phagocytes, that stand always on guard throughout the body to resist the invasion of disease germs. In consequence, a person addicted to the constant use of alcohol suffers from an impairment of vitality and a blood stream so poor in quality that he is unable to resist disease. Among adults, alcohol drinkers are the first to succumb to pneumonia, typhoid, and tuberculosis.

Alcohol and length of life. — The person who uses alcohol in any of its forms is less likely to live as long or to work so efficiently as the one who does not. Alcohol quickens the circulation and weakens the walls of the blood vessels. Professor Metchnikoff, the eminent French scholar, who has been devoting his labors to the solution of the problem of "old age," advocates entire abstinence from alcohol, because it leads to degeneration of the arteries, a common cause of death among Americans who have been prominent in the business world and the professions. It is a combination of overwork, insufficient rest, and overstimulation that kills off the active, hustling American before his time and puts an end to his usefulness. In the city of Leipzig lived a man who wanted to know if the men who drink much alcohol are sick more often than those who are not habitual drinkers, and if the first set of men live as long as the others. He went to a prominent insurance company and obtained the facts about a large number of men, the sum of whose ages reached nearly one million (952,874) years. He arranged the ages at which these

men had been sick, and at which they had died, by periods of ten years, thus:—

AGE	NO. OF NON-DRINKERS SICK	NO. OF DRINKERS SICK	NO. OF NON-DRINKERS DYING	NO. OF DRINKERS DYING
15-24	364	657		
25-34	368	973	53	122
35-44	422	1196	97	284
45-54	487	1270	167	372
55-64	561	1490	298	364
65-74	713	2090	580	746

Interpreting these figures by percentages, he found that for every 100 non-drinkers, between the ages of 15 and 24, who had been sick, there were 180 drinkers who had been sick. Arranged in columns (the black representing those who drink) the results were as follows:—

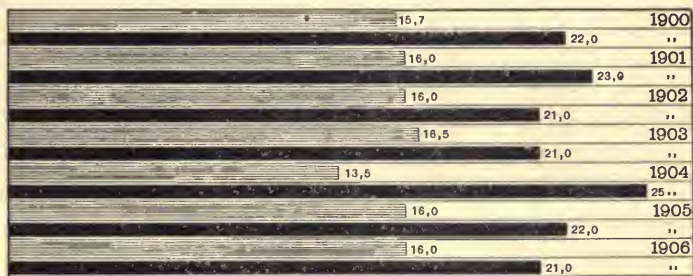


Study these tables carefully and work out for yourself just how much risk of disease and death you incur by drinking.

Alcohol and accidents. — Every effort, either mental or physical, involves the expenditure of a certain amount of energy, which, in normal health, is restored from day to day by proper attention to air, food, sleep, and hygiene.

Even a moderate use of alcohol is dangerous, especially to the worker. It interferes with the steadiness of nerve action and with normal judgment, and so becomes a frequent cause of accidents in the industrial world.

It is believed that the largest number of accidents in shops and mills takes place on Monday, because the alcohol that is drunk on Sunday takes away the skill and attentive care of the workman. To prove the truth of this opinion, the accidents of the building trades in Zurich were studied during a period of six years, with the result shown by this table: —



The heavy black lines represent the accidents on Mondays; the light lines, the accidents on the other days of the week. There are thus about three accidents on Mondays to two on the other days.

Alcohol and assaults. — A famous German scientist made a recent study of the days of the week on which a number of assaults occurred and the places where they were committed. He found that 628 assaults were made on Sundays and holidays, 182 on Mondays, 95 on Tuesdays, 67 on Wednesdays, 62 on Thursdays, 82 on Fridays, and 94 on Saturdays.

Seven hundred and forty-two of the assaults were made in the saloon, 86 at home, 98 on the street, 87 at work hours, and 102 in unknown places.

Tobacco. — In connection with the use of alcohol, we must consider the question of tobacco and what it does *not* do for the human machine.

While, as we have pointed out, in rare cases of sickness or emergency, an alcoholic stimulant may be considered of some value, it is very difficult indeed to find even so slight a reason for the use of tobacco.

Tobacco a poison. — Tobacco is not a food, nor a substitute for food. It does not meet the body's need of water, and the smoker of tobacco is very likely to become a drinker of alcohol. Tobacco does not help the lungs to take in air. On the contrary, it hinders the work of the minute air cells in putting oxygen into the blood. The presence of oxygen in the human system is necessary to life, but the habitual smoker shuts down the normal supply of oxygen, so that his tissues become impaired or broken down.

A noted physician says that tobacco is really a poison and that in the mode and intensity of its action it corresponds to prussic acid. He mentions a case where a fatal result followed in three minutes, after a poisonous dose of nicotine had been given. In another case, death occurred in five minutes.

The effects may be bad enough in the adult user of tobacco, but they are likely to be far worse in the boy and cause an impairment of growth and early physical prostration.

Cigarette smoking. — Cigarette smoking is the most harmful of all the tobacco habits. Because the cigarette is small and cheap, it is within the reach of the average boy. Most boys learn to smoke through using cigarettes, or the butts of cigarettes given them by older boys. Inhaling the smoke of cigarettes, that is, the taking of the smoke into the lungs, is especially dangerous. In this way, a greater quantity of the poison gets into the system.

Cigarette smoking irritates the delicate membranes of the mouth, throat, and lungs, renders them unable to do their proper work, and also partly paralyzes the nerves that control the breathing, so that the blood suffers from want of air. It also interferes with the regular action of the heart, which is obliged to work much harder and yet is unable to pump as good blood through the body as formerly. It constantly overstimulates the stomach, so that the digestive juices are secreted when they are not needed and the stomach becomes tired and weak. As a result, a boy cannot digest his food properly and his body is half starved.

Cigarettes injure his nervous system, so that he cannot sleep so much or so soundly as he should. He becomes tired, lazy, and unwilling to exert himself in the proper exercise a growing boy should have.

All of these interruptions stop the boy's growth, and he becomes a weakling, stunted in body and mind, though perhaps with the appearance of brightness. Diseased in body and mind, is it a wonder that his moral sense also becomes

perverted? Irresponsible and with no interest in sports, studies, or honest work, a cigarette fiend may soon drift into crime. The record of fifteen boys recently sentenced for crimes showed that ten of them had stolen to get the means of buying cigarettes.

Tobacco and success. — From a recent study made in our public schools, it was found that the cigarette smokers were more nervous, had poorer memories, poorer eyesight and hearing, worse manners, were more unclean in their persons, more untidy in their dress, took a lower rank in their studies, failed more often to make their promotions, were older, slower workers, more untruthful, and, altogether, were greatly inferior in physical, mental, and moral development to their classmates who did not smoke.

It is stated by an eminent authority, that, in fifty years, a tobacco user never took first honors at Harvard.

Napoleon III of France ordered an investigation of boys in the government training schools of that country, and found the smokers so inferior in physique, intellect, and morals, that the use of tobacco was strictly prohibited in all of the schools under government supervision.

In the United States, it is found increasingly difficult to get suitable men for the army and navy. There are always plenty of men to enlist, but few of them are found fit for service. The most important cause of this unfitness is stated to be the "tobacco heart" from which so many of the applicants suffer.

If a boy is ambitious to win a worthy, honorable success in life, he cannot be a cigarette smoker. There are so many competitors in the business world for the good positions, that an employer will always pick out the applicant who

has the best equipment in health, brains, and morals. Many employers will simply glance at a boy's hands when he applies for work, and the telltale yellow stain on his fingers is enough. His limitations are at once apparent. He is told more or less politely that his services will not be required.

How can a working boy afford to smoke? The cost of a small cigarette is trifling, but, as the habit grows, the cost of "a smoke" multiplied by its frequency, by the days, months, and years, represents a very great waste in real money, to say nothing of the tremendous waste in physical and mental power.

Nobody really needs to smoke tobacco or to drink alcohol. If you do it at first, "just for fun" or the excitement of it, you must face the fact that, in consequence of the habits that fasten themselves upon you, you will be obliged to give up very many of the wholesome, natural pleasures of life that mean so much to the boy and man.

And, if you fall into the way of using these things, because you think either is an aid or rest or stimulant when you are tired and discouraged, just reflect how many tonics and restoratives Nature supplies at no cost whatever.

REMEMBER

1. Alcohol is only a stimulant, a whip to the tired or irritated body. It is not a real food.
2. A craving for alcohol and tobacco is caused by weakness or nervousness which should be combated by hygienic measures.
3. The use of alcohol is due to lack of self-control.

4. Alcohol decreases resistance to disease, and increases trouble of all kinds.
5. Tobacco tends to cause sickness, malnutrition, laziness, and often moral depravity. It interferes with growth and success in school and in business.
6. Very few business men will engage a boy who smokes cigarettes.
7. If you need a tonic, spend more time out of doors.
8. If your body is tired, give it more rest and sleep.
9. Fatigue calls for rest or change in one's routine, and not the excitations produced by stimulants.
10. Your body should be fed with wholesome foods, not with poisons.
11. It does not make one more manly to smoke or drink. Every one, even the smoker and drinker, respects the man who does neither.

CHAPTER VII

THE NOON HOUR

Getting ready for lunch. — The noon hour is a welcome break in the working day, particularly if the worker has been obliged to sit or stand steadily throughout the morning, or if the nature of the work has cramped the body in an unnatural position.

The first thing to do is to cleanse the hands and particularly the finger nails with hot water and soap. Ordinary dirt is bad enough, but some factory dirt is actually poisonous. If you have your own towel as you should, wash your face whether it needs it or not, just for the sake of feeling better. As a simple sanitary precaution the washing of the hands before eating ought to become a life rule. Next cleanse the stomach by drinking half a glass of water, and you are ready for lunch.

The place for lunch. — Many workers in shops, and particularly in offices, get their lunches outside. These are fortunately situated, for they have a chance to get a little change from the monotony of their work and to breathe in fresh air. A good many workers, however, choose their midday meals very unwisely. The lunch should be of more nourishing food than a piece of pie and a cup of tea, or a combination of coffee and doughnuts. Articles like these cause indigestion, headaches, constipation, nervous irrita-

bility, especially when they are swallowed hastily, half-chewed.

Take time to eat slowly; even if you do not eat quite so much, your food will do you more good. Wholesome food, well digested, has more to do with energy and business ability than most young workers realize.

It will not take you long to find out which restaurant or lunch room within easy walking distance of your work gives



Choose the clean, airy restaurant

the best quality of food, the neatest and cleanest service, at the most reasonable prices. Cheapness does not mean quantity. Your food should be clean, of good quality, and well prepared, in order to give the best results in the way of nourishment.

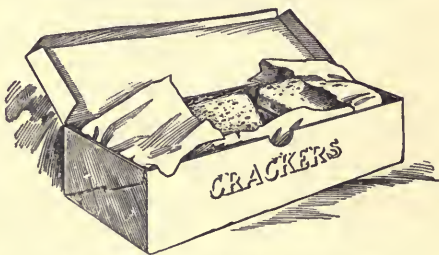
Avoid the lunch room which swarms with flies, where the

tables are sloppy and dirty, the plates and dishes half washed, and where the waiters, in soiled, greasy clothing, and with dirty hands and unclean finger nails, are allowed to serve food.

In any clean, dairy lunch place, you will be able to buy good nourishing food very cheaply. A bowl of bread and milk, milk and crackers, bread and butter and fruit, cocoa and buns, sandwiches, or a dish of soup will give you more working power than pastries, meats, hot breads, tea, and coffee. As you must spend the rest of the day in active work, a few wholesome articles of food, well chewed, will do you more good than a variety of heavy foods.

If you buy your lunch from the delicatessen shop or grocer, or from the street vender, apply the same rule of cleanliness. Don't forget to wash the fruit you buy from the pushcart man before you eat it. He may be a vender of

disease as well as of oranges, grapes, and apples. The fine dirt of the street, filled with the germs of all manner of disease, the dried sputum of human beings, and the excretions of animals,



A cracker carton makes an excellent lunch box

settles on the fruit that is sold to you. If you stopped to think, you would not be able to eat this fruit just as you buy it. The oranges and bananas may be peeled, the apples, pears, and peaches are sometimes pared, but grapes, cherries, and figs are usually taken right into the mouth.

The lunch box. — If you find it cheaper to bring your

lunch from home, see to it yourself that your lunch box is emptied out every night, cleansed, and aired. Use a paper cracker box that you can throw away, or purchase a folding box of tin from which you can wash the stale flavor



A folding lunch box is easily kept clean

of yesterday's lunch. Good bread and butter, cheese, fruit, sandwiches made of eggs, peanut butter, American or Swiss cheese, or any cheese that can be spread, homemade jams and jellies, are more nourishing and appetizing than lunches of rich, heavy cakes, pies, and pickles. Vary the diet by having rye, whole wheat, or graham

bread, sometimes, instead of the fine white kind. A little jar of prunes or other stewed fruit, apple sauce, or a baked apple will go well with the bread. If you have some one to make it for you, a cup custard occasionally will be a pleasant and nourishing change. If you buy something to drink with your lunch, by all means let it be milk, rather than tea or coffee. Milk is a food as well as a drink. In the long run beer never pays.

Fresh air at noon. — Whether you are a “time-worker” or a “piecemaker,” whether your lunch time is thirty or sixty minutes, try to get out every day for a few breaths of fresh

air. Better to forfeit a little money at the noon hour, than to endanger your health by overwork and lack of pure air in your lungs. So, unless the weather is very bad and you are not protected against it, go out every day for a brisk walk, even if it is just around the block, and *breathe*. Keep your mouth closed and take in long breaths of air very slowly, exhaling them just as slowly.

Don't go out to smoke. A great many boys fall easily into the habit of smoking cigarettes because they do not get enough to eat. After you become a wage earner, you are in a position to use your good sense and judgment and can select for yourself the foods that will build up body and brain.

A nourishing lunch, well chewed, and a brisk walk in the fresh air will bring their reward in renewed energy, better circulation, steadier nerves, and happier spirits. You will go back to your machine, bench, or desk, feeling refreshed and equal to the afternoon's work, to say nothing of the work of to-morrow, next week, and next year.

State laws. — A few of the states have already regulated the time to be allowed for the noonday meal, but the law should be generally introduced, in order that the workers may have every opportunity to rest and relax from the morning's efforts, as well as to eat in comfort.

The General Labor Laws of the state of New York specify that "in each factory at least sixty minutes shall be allowed for the noonday meal, unless the factory inspector shall permit a shorter time."

As a result of the investigation made by the Secretary of Commerce and Labor of the United States into the condition of women and children wage earners in the ready-made

clothing industry in this country, it was found that very few out of many factories visited made any provision for lunch places for the workers.

A model lunch room. — In the best of these factories a room is partitioned off from the workroom and is fitted up with a gas range, coffee urns, and all necessary cooking utensils. The tables are covered with clean white tablecloths, and silver knives and forks are provided. The owners of the establishment, the foremen, and heads of departments usually eat here with the employees. Good, plain food, well cooked and neatly served, is furnished at a very reasonable cost and the bill of fare is changed daily. Pure milk is supplied in bottles.

The employee takes a tin tray on entering the lunch room, goes to the serving table, where his order is placed on the tray, and then selects a place at one of the tables where he is able to eat his noonday meal in comfort.

Management of the lunch hour. — Where no room is specially set apart as a lunch room, some firms supply folding tables which can be set up in the workroom, and allow their employees to make coffee at lunch time. In many shops it is the custom for peddlers to come around at noon and to supply the workers with fruit, sandwiches, cakes, candy, milk, lemonade, soda water, or whatever they wish to buy.

This is especially the case in large cities, where food venders are numerous and a great many workers depend on them for the noonday meal.

In many factories, a club of girls — or men — will send one of their number outdoors at the noon hour to buy the food needed. Sandwiches, salads, canned goods, bread and

butter, cakes, pies, tea, coffee, or milk may be brought from a nearby restaurant or delicatessen shop, while fruit and candy may be bought from the street vender. Sometimes, all of the food needed at the noonday meal is bought from the pushcart in the street.

In the absence of lunch places, the workers eat their food in the workroom, but as so many factory workers are what is known as "pieceworkers," they take no more time than is absolutely necessary, sometimes eating their food without stopping their work. Even the employees who do not eat the noonday meal in the shop, usually hurry back and start working just as soon as possible, in order to lose no time.

In cotton mills and glass works, men and women both eat in the workrooms, or out of doors, when the weather is pleasant. Many of the women workers in these trades are not provided with chairs or stools while at work, so they are obliged to use as seats, the tables, benches, boxes, or anything that happens to be at hand.

Evidently this system is all wrong. The body cannot get good results from food eaten in haste and discomfort, in the midst of unattractive, if not positively unhealthful, surroundings.

The importance of rest at noon.— An interesting experiment was made by a physician, who gave his two dogs their breakfasts of the same food and under exactly the same conditions. Then one dog was put in his comfortable kennel to lie down and sleep, while the other dog was taken out with his master, who drove a long distance into the country, the dog running beside the carriage. On coming back, the physician examined the dogs' stomachs and found that the

food given to the first dog had been digested and had passed into the blood, while the food of the dog that had been running was still in his stomach, undigested.

This shows that when we work very hard, using the blood in active muscular or mental work, the digestive juices do not flow and digestion cannot go on. Under these circumstances, food is nothing but a burden to the body. Many a worker digests his breakfast, lunch, and dinner, if at all, after he goes to bed at night. During his meals and between them, he has been exerting himself, or is worried, hurried, nervous, and irritable. The stomach has no chance at all and has to wait until the worker is asleep before it can commence to turn the food into blood, that will build up the worn-out cells and tissues.

This manner of living certainly does not pay the worker, who has a right to such conditions in the shop or factory as will keep him in just as good working order as the machine he runs.

Aids to digestion. — Music, cheerful conversation, rest, and leisure in eating are all aids to digestion and help to make the workers more efficient and happy.

At a large manufacturing plant in the Middle West, the employees decided they needed a clubhouse, so they talked the matter over with the management and secured a house close by the works. The company furnishes room, light, and heat, and a committee of employees manage the club, serving from 300 to 400 people every day with good, warm, nourishing food at a cost of 10 to 20 cents. The receipts pay for all expenses, and the committee are able to lay aside a few dollars each week towards future improvements. A phonograph fitted with records of the best classical and

popular music entertains the men during the noon hour, and they return to their work refreshed in mind and body.

An attractive, well-furnished room, in which the women employees of this same firm can eat their lunches, rest, read, and have a social time during the noon hour, has proved profitable to the company as well as to the girls. Formerly, 50 per cent of the girls were constantly leaving their employ, but now the work conditions are so attractive that there are always applicants waiting for a vacancy.

In another well-organized factory employing about 1000 people, in addition to the comfortable lunch rooms for men and women employees, opportunities are given for dancing during the recreation hour, the musicians being volunteers from the working force. A reading room and library have also been installed, which are well patronized by the workers.

Some of the best department stores also make provisions for lunch and rest rooms for employees, though at present it is the exception rather than the rule for employers to furnish lunch places for their workers, for the law does not require it. Employers are as a rule far-sighted enough to see the practical results of such arrangements.

THE NOON HOUR ROUTINE

1. Clean up and take a drink of water.
2. Get out of the shop if possible.
3. Fresh air and change are quite as important as food.
4. Eat clean food with clean hands in clean places.
5. Don't eat street dirt on food purchased from pushcarts.
6. How you chew is as important as what you chew.

7. Good company and cheerful conversation are the best sauces.
8. Milk is more nourishing than coffee and either is better than beer.
9. Give the food a chance to do you good after you have spent your money for it, by taking a rest or a little quiet recreation after you have finished eating.

CHAPTER VIII

HYGIENE OF THE WORKROOM

Proper conditions for the workroom. — A sanitary workshop demands enough space in which the individual may do his work comfortably, an even temperature, a proper supply of fresh air, neither too dry nor too moist, good lighting, pure drinking water, a general condition of cleanliness, and proper facilities for the workers in the way of clothes closets, wash rooms, and toilets.

Space. — Many employers make the mistake of crowding too many workers into a small space. The passageways are too narrow for safety, and the operators of machines daily risk their lives by being exposed to gears, pulleys, belts, and other moving parts. If you know such conditions to exist in a factory, avoid working there, and do not sacrifice your health and possibly your life. The factory laws of New York allow 250 cubic feet of air space to each worker.

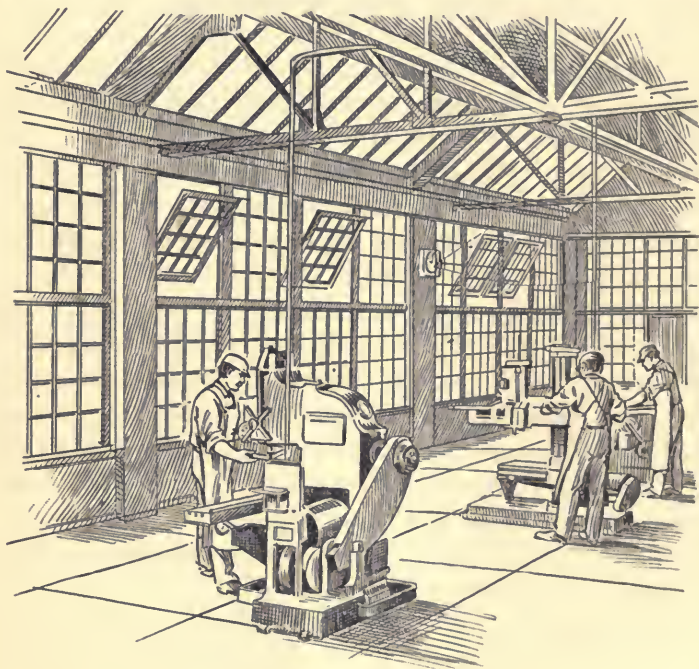
It was Shakespeare who said, "I am in health — I breathe."

Ventilation. — One can manage to live for days and days without food, as has been shown by explorers, and workers who have been trapped in mines and quarries; without water, one can exist for a shorter time; but, if the air supply is completely cut off, one will die in less than ten minutes.

The outdoor worker is likely to live longer and be more

healthy than the average indoor worker, because of his opportunity to breathe in a plentiful supply of pure air.

Effects of impure air. — There is no doubt that impure air is one of the most serious dangers to which the indoor worker is exposed. The air in houses and workshops is



A light and well-ventilated workshop

soon filled with the impurities and poisonous wastes cast out by the people who breathe it in and out, over and over again, to say nothing of the dust, germs, and countless tiny particles of injurious material that get into the air from the work itself.

The breathing in of dirty air is just as harmful as the drinking of impure water. People who would not think of bathing in the same water in which another person has bathed, sit in crowded theaters or moving-picture halls, or work in close, dusty rooms, breathing the air that is loaded with the impurities cast off by other people.

Working in dusty, badly ventilated rooms is responsible for many diseases, particularly of the lungs. The best physicians prescribe pure, fresh air as the principal part of the treatment for tuberculosis. How much more important, then, is fresh air in the prevention of such diseases!

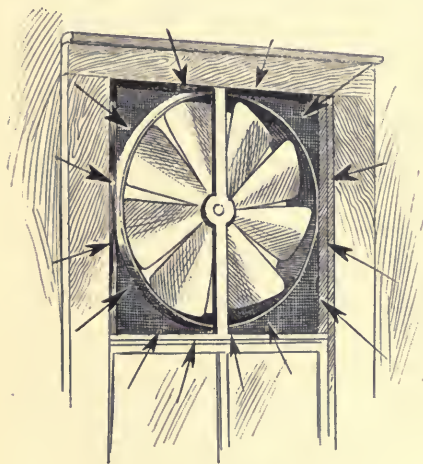
Overheated, poorly ventilated rooms also tend, by affecting the digestive organs, to lessen the body's resistance to disease; for our food, if it is to do us good, must be combined with the oxygen in the air we take into the body. The headache, dizziness, faintness, loss of appetite, low vitality, and fatigue from which so many shop workers suffer may be traced to the same lack of the life-giving principle in the air that is breathed. Again, it is the oxygen that we take into our blood that enables the body to keep itself warm; and when, instead of the oxygen, we breathe in air loaded with impurities, the blood becomes thin and poor in quality, making us much more liable, as the saying goes, to "catch cold." One does not keep warm by shutting up all the doors and windows in a room. On the contrary, it has been found that it takes more fuel to heat stale air than is needed to make a well-ventilated room comfortable, even on the cold days of winter.

Ventilating system. — The vice president of a well-known typewriter factory recently told this story, illustrating the advantage of having a ventilating system in their factory.

"One day in August," he said, "I took the train from New York to Hartford. It was the hottest ride I think I ever took. 'Surely,' I said to myself, 'the factory will be closed this afternoon.' On the contrary, I found everybody in his place, the rooms comfortable. In fact, I walked about three miles in the factory on my tour of inspection, without

the slightest discomfort. This was all due to the ventilating system that had been put in."

Proper ventilation is not so much of a problem in small factories which are not overcrowded, or where open doors, windows, and revolving fans can keep a reasonable supply of fresh air circulating through the rooms. If you



Removing bad air

work in factories or offices of this kind, where the ventilation is controlled by the workers themselves, good sense and consideration for the other workers must be shown in the matter of keeping windows open or closed. As hot, impure air has a tendency to rise, the windows should be open a little from the top to allow the foul air to pass out, and they should be open at the bottom to allow the fresh air to blow in.

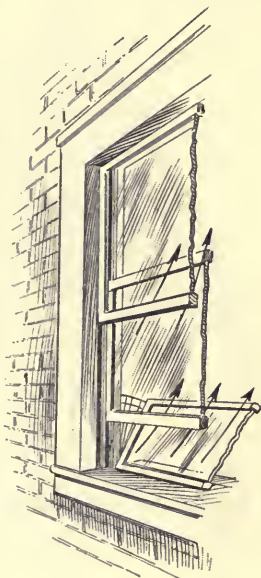
Certain windows in a shop or office cannot be opened

without causing discomfort to some one through disagreeable drafts. In such cases, the windows may be fitted with boards across the bottom, or the window sash when raised may rest on a board that fits closely to the frame, or the type of window ventilator protecting from drafts and used in many offices and factories may be installed. An improved "window board" is made of glass and placed inside the window sill so that the window may be opened six inches or more and the air directed upward.

In large factories, however, and especially in those in which there is a great quantity of dust thrown off by the work, a system of proper ventilation can be secured by forced drafts, by which the dusty, impure air is sucked out of the workroom and a current of fresh air blown in.

Heating.— A crowded workroom is much more comfortable if it is kept cool. Extremes of heat and cold should be avoided. For the average worker, who is properly clothed, the temperature should not be allowed to rise above 68 degrees. On the hottest days of midsummer, the workers will do more and better work if there is a system of exhausts and cooling fans.

Humidity.— Excessive moisture and excessive dryness of the air are both harmful to the worker. An average humidity between 60 and 65 per cent has been found a good



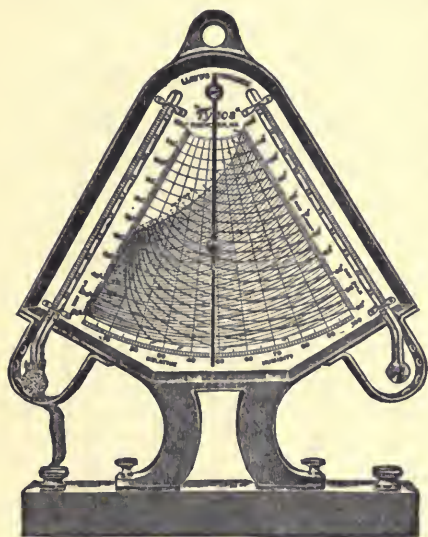
An improved window board

standard. There are simple instruments to determine the humidity of the air, just as the thermometer measures heat and cold, and these should be installed in every workroom.

The health of the worker is closely related to safety, because anything that tends to lower the vitality or make the

worker less alert and watchful increases the chances of accidents. Statistics prove that more accidents happen when the worker is fatigued, or run down, than at any other time.

Lighting.—The question of lighting in workshops is also of very great importance. The best light, of course, is that which makes it unnecessary to strain the eyes even on cloudy days. But in many factories and offices,



The hygrometer, which measures the humidity in the air

particularly in cities, such an ideal condition is seldom to be found.

In a badly lighted shop, the worker is obliged to bring his work too close to his eyes, thereby causing strain which may lead to chronic eye trouble. According to one authority on this subject, the area of the windows in a shop should equal at least one sixth of the floor space. They should reach almost to the ceiling, and the glass should be

pure white, ribbed or prismatic. In narrow streets, lined by tall buildings, windows made of prismatic glass, which refracts and diffuses the light, probably allow more light to enter the room than any other kind. The window glass should always be kept clean.

It has been stated that at least 80 per cent of headaches are the result of eyestrain. As a great many people are obliged to work every day by poor light or artificial light, they suffer a serious loss of nervous energy that might otherwise go into their work.

A dingy room may be greatly improved by the frequent washing of windows and by whitewashing the walls at least once every year.

Where artificial lights are absolutely necessary, they should be as steady as possible, not too glaring, and should not overheat the workroom or burn up the air. For these reasons, electric lights and those known as the mercury vapor lights are among the best.

In addition to their bad effect on the air and the eyes of the workers, open flames in a workshop greatly increase the



An eye shade protects the eyes from direct light

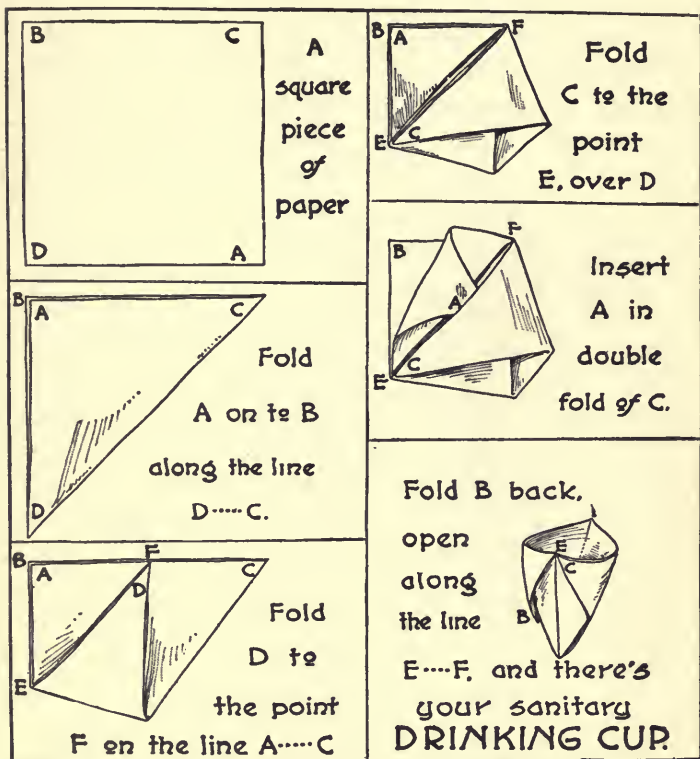
danger of fire in those factories where light, flimsy, or explosive materials are handled, and where the rooms are overcrowded, giving the workers little chance of escape if a fire does break out.

Bad lighting is very often the cause of serious accidents, and statistics show that the greatest number of accidents in factories and workshops occur during the months of the year when the days are shorter and the natural light is less. For purely business reasons, therefore, many owners and managers have found it wise to install the very best type of electric lighting in their shops, thus preventing accidents and sickness among their employees.

Water. — Another matter of great importance to the worker is the provision of pure drinking water. Fresh water of good quality should be found in every office and workshop, if the management expects the workers to remain in good condition. The human body, in normal health, is two thirds water. Therefore, aside from the water contained in foods, we should drink freely of it every day. Drink as you commence work, before lunch, and at the close of the day at least, and if you can, in the middle of the morning and the afternoon. Water is needed by the blood to help it carry nourishment to every part of the body. It is also necessary in helping the body get rid of waste material. Many cases of catarrh, constipation, rheumatism, and colds, all of them due to accumulation of waste in the body, have been cured simply through drinking two and three quarts of water daily.

So it is necessary that the worker find plenty of good water convenient during the day. But the water must be pure. It has been pointed out by a physician who is an

authority on preventable diseases, that 85 per cent of the cases of typhoid fever in this country are due to drinking impure water. Impure water also causes stomach and



How to make a paper drinking cup (Chicago Board of Health)

bowel troubles, which may make it necessary for the worker to be absent for a day or so at a time. This means a money loss to the worker and the employer loses the value of the worker's time.

Several years ago, a factory owner put in a water sterilizing apparatus at a cost of \$1500. He states that it has actually saved him \$2000 each year since then, because of the greater efficiency of the workers and the greater regularity in their attendance.

When water tanks or coolers are used, they should be cleaned every day, and the common drinking cup should not be permitted. According to the laws of New York and other states it has now been abolished.



Have your own towel, glass, and soap

If the management does not supply the individual paper cups, it will cost each worker but a few cents to get a heavy glass or serviceable cup, which may be kept clean and strictly private. Too many dangerous and loathsome diseases have been spread through the use of a public drinking cup, to allow the worker to take any risks in the matter. Drinking cups may be made of little squares of paper.

The sanitary drinking fountains of the "bubble" type are probably the best means of providing clean water. They are now in use in many public places, schools, and shops where a great number of people are employed.

Towels. — The hygiene of the workroom includes the

individual towel, as well as the individual drinking cup, as many people have been disabled or disfigured for life by using towels after they have been infected by other people suffering from contagious diseases. In this way painful skin diseases are spread, and the eyes may be infected and become blind.

Recently, a very intelligent man, doing useful work as an inspector, was practically obliged to give up his position, because of blindness in one eye that came from using a towel that had been infected by some one else. Try to keep a towel for yourself in your own locker or drawer, if you have one, and take it home regularly to be washed.

It is a good plan, which some factories are already following, to supply the workers with paper towels that are at once cheap and sanitary. These towels come on rolls; each is perforated and can be easily torn off from the roll, for individual use. When soiled, they are thrown into the waste can or basket, and later burned.



Danger!

Waste. — Each factory should be supplied with enough strong, metallic waste or refuse cans, to take care of all the trash that accumulates during the day. Not only does this plan result in keeping the floor in a clean and sanitary condition, but it positively reduces the danger of fire. Cooperate with your employers and protect yourself, as well

as your fellow workers, against such dangers, by putting into the covered receptacles provided all greasy rags, lunch papers, and the useless and inflammable waste that may come from your work.

Going through the works of a large steel company, a visitor, seeing some rats scuttle off, asked the official who was showing him about, if the new cables were ever found

broken or defective. "Why, yes," he replied, "it is a great puzzle to us to find out just why it is so, but it is true that many of the cables do not give the service they should." "Did it ever occur to you that you are raising a large family of rats on the lunch refuse that is left lying about the floors and yards?" asked the visitor. The official saw the connection at once and resolved to install strong, well-covered cans to take care of what had formerly been the food supply



Metallic waste can

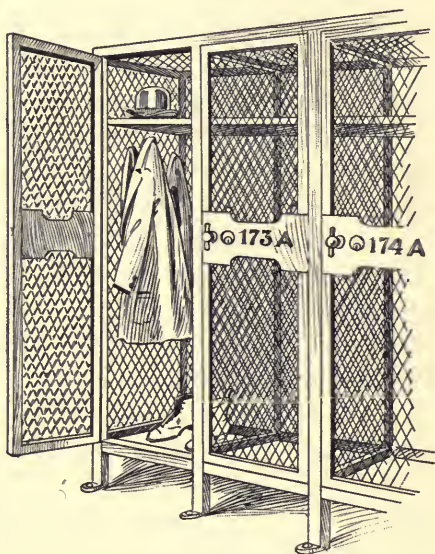
of the rats. In a short while the works were free from these pests and the cords and cables were kept in better condition.

Handkerchiefs. — If you are engaged in handling dangerous or poisonous materials, be careful always to keep your hands away from your mouth and eyes, and thoroughly wash your hands, arms, and face before eating. Always be supplied with a clean pocket handkerchief; keep it for your nose and mouth and do not use it also as a polisher for your

shoes or as a wiping rag for your machine. Do not cough or sneeze into the air if you can help it. Many persons, unconscious of the fact that they are suffering from tuberculosis, have spread the disease in a crowded shop through such carelessness as this.

Spitting. — A sanitary shop will be well provided with spittoons and will rigidly enforce the rule against spitting on the floor. The dried sputum on the floor is responsible, more than any other cause, for the wide spread of tuberculosis in shops and factories.

In this respect, as in so many others, you can coöperate with the management for safety and health by doing the right thing. Even if you are careless about your own health, you have certainly no moral right to endanger the lives of your fellow workers.



Well ventilated metallic lockers

Lockers. — The provision of suitable clothes closets or lockers should be regulated by state law, but a great many far-seeing employers are installing them on their own account. These lockers may prove to be a guard against the spreading of contagious disease, as the clothing of the

workers may carry the germs of diseases from which members of their families are suffering. Lockers should be strongly constructed and well ventilated, so as to keep the belongings of the workers in safe and hygienic condition. One employer has gone further than this, in connecting a heating system with the lockers, so that on cold or rainy days, the workers, when they are ready to go home, find their outdoor clothing warm and comfortable.

In many shops, these lockers are connected with the wash room, so that a man may keep his belongings in the same compartment where he washes up after the day's work. Each man is given a key to his own locker.

Wash rooms. — Every shop and factory should be provided with sanitary water-closets and good washing facilities. A plentiful supply of hot and cold water and soap is necessary, especially if the workers are engaged in very dirty or dusty trades. In those where the dust and fumes are poisonous, as in the case of lead, phosphorus, and mercury, every facility should be given for washing the hands before eating, for cleansing the body by means of shower or spray baths, and for changing the clothing before going home. One of the largest paint factories in the world provides its workmen with clean clothing every morning. At night, the clothes the workmen have worn during the day are laundered. Baths are insisted upon, the workers being given time by the company for this purpose. In this way, the management protects the workers from much of the danger of lead poisoning.

The factory inspectors complain that many of the water-closets connected with factories and shops are in very bad condition. There are usually too few for the number of

workers employed, and are generally in an unsanitary and unclean condition.

Already some states have taken up the question of regulating the number of toilets a factory should have, according to the number of people employed in it. Where there are both men and women, separate toilets are required. One state has distinctly specified that "when the number employed is more than twenty-five of either sex, there shall be provided an additional water-closet for each sex up to the number of 50 persons, and above that number in the same proportion."

Water-closets should be light, well ventilated, and have floors that can be easily and frequently flushed out. The workers themselves are often responsible for the unsanitary conditions that exist, through carelessness or an indecent disregard for the rights of others.

Here, again, the value of personal cleanliness and personal coöperation with the management must be pointed out, if you are to do your share in keeping the work place clean, safe, and healthful, not only for yourself but for all of those who work with you.

RULES FOR THE WORKROOM

1. If you cannot have out-of-door work, be a fresh air enthusiast and get good ventilation for yourself and co-workers; keep out of doors as much as possible when not working.
2. Get good light from above and behind, with no shadows on your work, if possible. Do not hold the work too near, and rest the eyes occasionally by looking

at a distance. Wear an eye shade if the light *must* come from in front.

3. Drink a glass of water at least three times a day. Avoid the common drinking cup; have a cup of your own.
4. Have a clean handkerchief and use it.
5. Do not spit on the floor.
6. Keep your clothes locker clean and in order.
7. Do not subject yourself to contagion from a dirty toilet.

CHAPTER IX

FATIGUE

The necessity of work. — In order to live in a self-respecting manner, every one should make good his or her place in the world. Every one consumes something; therefore, every one should produce something.

Next to being unable to work, the greatest misfortune is to be without work. Idleness not only causes want, suffering, and discontent, but it also leads to physical and moral degeneration, and, finally, to vice and crime. The worker usually lives longer and is healthier and happier than the idle person.

The mechanism of the average human being creates a certain amount of energy over and above what is needed to keep the body in good running order. This fund of energy must not be allowed to go to waste. If it does not find an outlet in useful work, it will spend itself in ways that are harmful.

Capacity for work. — In itself, work is a good thing. On the other hand, there is a limit to every one's power to perform work. This limit varies in accordance with the nature of the work, the constitution, the personal habits, the frame of mind of the individual, and the conditions under which the work is performed.

If the body and brain are forced to work beyond their natural capacity, if the work is too severe, or kept up too long at a time, making it impossible to get the required

amount of rest and recuperation, then the vitality is weakened, and sickness and disability will result just as surely as in those occupations which are considered dangerous to the worker on account of dusts, poisons, and accidents.

Under normal conditions, the human body as a machine is greatly superior to a steam engine. Out of the heat and energy created by the body in eight hours of work, one fifth can take the form of mechanical work. A steam engine ordinarily is able to use only about one eighth of the total energy created, or set free. The body makes better use of food than the steam engine does of coal.

Every machine, however, will sooner or later break down, if kept constantly at work, or pushed to the limits of its energy. Overworking the human machine to physical and mental exhaustion is one of the greatest evils of the present age.

Removal of waste. — As we already know, the human body is a great chemical laboratory or workshop, where changes are constantly going on and where food and air are being made over into tissues, blood, and energy. At the same time, there is a constant pulling down of worn-out tissues that are turned into waste material with every breath we breathe, every thought we think, every stroke of work we perform.

We must get rid of these poisonous wastes through the exhaled breath, the kidneys, bowels, and skin. Health is really the keeping of a true balance between the income of the building materials of air, food, and water, and the outgo of the bodily wastes and refuse. An engine cannot work long unless the ashes and clinkers are removed; neither can the body.

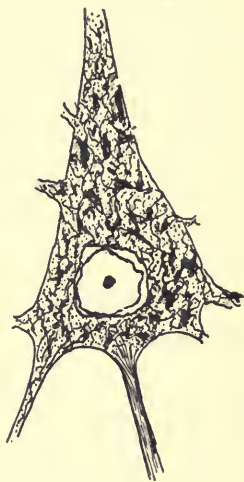
In working with the muscles or brain, an increased supply of blood is sent to the parts where it is needed. This is because the wearing out of the cells and tissues is going on more rapidly at these points.

Work can be done only while a muscle is contracting. The mind flashes a command to a muscle, or set of muscles, to do a certain piece of work. The muscle contracts, using what it needs of the food in the cells and the oxygen in the blood and casting aside as waste what it cannot use.

Cause of fatigue. — The waste products resulting from the manufacture of heat and energy accumulate in the system very rapidly. If the work



Healthy brain cell



Exhausted brain cell

is too long continued, if the supply of food in the cells is exhausted, if the oxygen in the blood is burned up, if the poisonous wastes cannot be removed quickly enough but are allowed to remain in the body for any length of time, then the worker shows the symptoms of fatigue.

By a strong effort of will, we can force our tired muscles and brain to keep on working after the fatigue point has been reached; but in doing so, we only increase the fatigue

products in the blood and run the risk of seriously injuring the nervous system.

When a muscle becomes fatigued, it cannot respond and contract so quickly, and is not able to set free the same amount of energy as in normal health. The structure of the nerve cells then undergoes a change, on account of the circulation in the blood of the poisonous fatigue products, and the kidneys and liver also become fatigued. It is always noticeable, in doing an unusual amount of work, or when the brain is working with great concentration of effort, that the kidneys are very active. This is because it is the function of the kidneys to drain off a large proportion of the wastes of the body, and, when these are being cast into the blood at an abnormal rate, the kidneys become over-worked. Were it not for the power that resides in our bodies to get rid of these waste products, we should die from the effects of the poisonous materials.

It has been definitely proved that a condition of fatigue is due to the poisonous effects of the waste created by over-exertion of the body. Dr. Thomas Oliver illustrates this clearly in his account of the experiment made by injecting some of the blood of a fatigued dog into a perfectly healthy one. The dog receiving the fatigue poison shortly afterwards showed signs of weariness, crept into a corner, and went to sleep.

The fatigue point. — The fatigue point, as has already been shown, differs with the occupation, the constitution, and the personal habits of the worker. Some persons are always more easily tired than others, as they have started out in life, evidently, with weak nervous systems. Sometimes this condition of nerve weakness, or neurasthenia, as

it is called, may be the result of great mental strain or effort. People who have suffered what is known as nervous prostration are usually afflicted with nerve weakness the rest of their lives.

Many children, particularly in the congested districts of our large cities, are brought up badly nourished, badly clothed, and subjected to hardships that result in stunting the growth of their bodies and weakening their nervous systems. The children of parents who work very hard in certain occupations are usually smaller in size, less intelligent, and more feeble than the children born of healthy parents and brought up with the additional advantages of nourishing food, plenty of fresh air, and play.

Thus, it can be seen that every worker does not start out with the same physical equipment. Persons with weak nervous systems, who become exhausted very quickly, need a greater amount of care, rest, and recuperation from their efforts than those endowed with more nervous endurance.

Posture at work. — There are many occupations where the effects of assuming a strained posture while at work are in themselves injurious, besides adding to the natural fatigue of the worker.

Shoemakers, cigar makers, tailors, weavers, watchmakers, engravers, bookkeepers, all suffer from cramped muscles and a constriction of the chest that results in shallow breathing, which, taken in connection with poor circulation of the blood and other unhealthy conditions, makes these workers liable to tuberculosis of the lungs.

The chests of shoemakers who do home work and of cobblers show the effects of the constant pressure against

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the last they are obliged to hold between their knees. In some cases the chest bone and ribs are driven in so far as to form a deep hollow.

Sedentary occupations combined with monotonous repetition of the same muscular efforts are especially fatiguing. In addition to the danger of bronchial and lung diseases, these workers also suffer from indigestion and constipation; as a rule, they do not live so long as those workers whose

occupations allow greater freedom of movement.

No one need allow the body to be damaged, no matter what the work may be. The one strict rule is this: keep the back straight from the hips to the neck; keep the chest high. If you must lean forward, bend at the hips. While this may be hard at first and fatiguing for a while, it is worth the effort; unless this is done,



Correct posture for work

the body will become permanently bent, the chest contracted, and the organs of the body, heart, lungs, stomach, liver, and intestines, cramped and liable to disease. If the body becomes tired, use nature's method of relieving it: stand

and stretch, putting the arms back of the head, press back, and take a full breath. This usually induces a natural, restful yawn which relieves all tension.

Many occupations might be enumerated which cause an abnormal strain upon certain muscles of the bodies. Those positions which require constant standing are very fatiguing; among the workers who suffer in this respect are the tenders of mangles and other machines in laundries, the salesmen and saleswomen in stores, those who are obliged to stand while working at machines in factories and shops, motormen, and others. In addition to fatigue, these workers also suffer from flat-foot, a condition we have previously considered.

But there are other things that contribute to the fatigue of the body even more than the nature of the work and the posture of the body in doing it.

Work, too long or too fast.—Under normal conditions, a reasonable amount of work is never injurious to any one. But the expenditure of energy must be balanced by a proper amount of rest and relaxation. If the body is forced to keep at work after the fatigue point is reached, day after day, without sufficient sleep or opportunity to find healthful recreation, the reserve fund of energy stored in the cells of the body is used up; and, if the strain is continued up to the limit of exhaustion, there may be a sudden revolt of the overtaxed organism and a collapse that may prove disastrous physically and mentally.

In connection with the question of overstraining and overspeeding the human machine, we come naturally to a consideration of the proper length of a working day. This is a matter which is now being seriously studied in our

country, and legislation regulating the number of working hours in certain occupations is increasing in the various states.

The general opinion is that the working day in the majority of occupations is entirely too long, and that the same quantity of work could be performed in fewer hours with greater benefits to both employer and employed.

Night work. — In addition to the evils resulting from long working hours, we must consider the effects of night work.

Since this requires sleeping in the daytime, it is always more or less injurious because the worker cannot get the sound, refreshing sleep he needs. Usually, when the workers live in small, crowded apartments, in congested districts, the noises that commence with daylight make it impossible to secure restful sleep. The weather at night is also more moist and chill than during the daytime, and, if the worker comes from a heated work place, he runs a great risk of being made ill by the sudden change of atmosphere.

In those industrial plants where the furnaces are kept going throughout the year, or working seasons, as in the case of glass works, two shifts are kept constantly at work. In many places where two shifts are worked, it is the custom to have the employees alternate, that is, work one week during the day and the next week at night. This means that the worker must learn to sleep one week in the daytime and the next week in the nighttime. Many people find it hard to make this change in their sleeping habits, and, consequently, suffer from insomnia. The lack of sound, restful sleep, the irregularity of meals, and the discomfort of making the change from day to night work,

all tend to weaken the nervous system and to reduce the worker's powers of resistance to disease.

The practice of keeping two shifts at work leads also to the evil of working many hours over time. For instance, in rush seasons, a laborer may work throughout his own shift and then part or all of the next shift, keeping at work continuously for twenty hours or longer. Such hours mean a terrible strain upon the vitality and nervous endurance of any worker, and lead to exhaustion and early death.

While some progressive employers are reducing the hours of work for humane and practical reasons, much remains to be done in the way of laws, strictly enforced, as protections from the evils of overwork and industrial fatigue.

Proper working conditions. — Reasonable work hours, a proper amount of good fresh air and a system by which the bad or dusty air may be drawn off, good lighting, avoiding the fatigue due to eyestrain and the danger of accidents, pure drinking water, the providing of seats for employees, especially women, a lunch period long enough to allow the workers to rest and relax and to eat the midday meal in comfort, — all of these sanitary conditions in the workshop will reduce a large part of the fatigue and weariness now felt by many industrial workers.

The practice of allowing a brief recess in the middle of the afternoon, when most workers experience what is called "three o'clock fatigue," is now being followed by a few far-sighted employers who realize that the health and vitality of the workers is one of the most important factors in the success of the business.

Remember that it is only the overfatigue that is harmful.

A person healthily tired will quickly find recuperation in rest and sleep. For this reason it is highly important that the worker get enough sleep to repair the waste caused by the day's work.

Personal habits. — The personal habits have much to do with keeping one in good condition for work, or in adding to the fatigue due to other causes. It is well known that intemperance in eating and drinking or overindulgence in tobacco and alcohol or any of the physical appetites, uses up the vitality and nervous energy more quickly than the actual performance of useful work. Everything that tends to devitalize the body should be strictly avoided.

The fatigue point, particularly in mental work or anything requiring concentrated care and attention on the part of the worker, may also depend largely upon the individual's state of mind. The body needs four fifths of the energy it creates to keep itself in repair and good working order, but if one hurries or worries at his work, he uses up more than one fifth of the energy left for activity of any sort. One could sit still all day, without doing a stroke of work and worry to the extent of using up all the energy in the body as fast as it is manufactured.

Another reason why one should not worry while working is that the hurried, worried person cannot breathe properly. His breath is quick and shallow and, in consequence, he cannot take in the supply of oxygen needed to purify the blood and help the organs do their work. He is usually irritable and nervous, and suffers from disorders of the digestive organs. He cannot do so much work, in the long run, as the cheerful, steady worker. Cheerfulness is always a factor in good health and successful work.

As Carlyle has so well said : —

“Give us, oh, give us the man who sings at his work ! He will do more in the same time, he will do it better, he will persevere longer. One is scarcely sensible of fatigue, whilst he marches to music. Wondrous is the power of cheerfulness, altogether past calculation its power of endurance.”

If, however, in spite of devices and precautions to protect the worker from fatigue, in spite of sensible habits of living and an effort to keep in a cheerful frame of mind, the worker feels he is going beyond his strength and is steadily losing ground, then it is time for him to take a vacation or change his position. In a condition of exhaustion, one is of no use to himself or to any one else. No worker can afford to run the risk of passing beyond the limits of his strength and nervous endurance, and of becoming physically bankrupt, with the prospect of never being able fully to regain his vitality.

The worker should never take advantage of good hours and consideration on the part of the employer, but should show his appreciation by constantly doing more than is required. While laziness may in some cases be due to poor health, there is seldom any excuse for it. To shirk is poor policy, for it prohibits advancement and injures fellow workers more than it does the employer.

FATIGUE

1. “An idle mind is the devil’s workshop.”
2. If you have no steady work, use your “off” time steadily to improve your knowledge of the next

higher job, working in the public library or correspondence course.

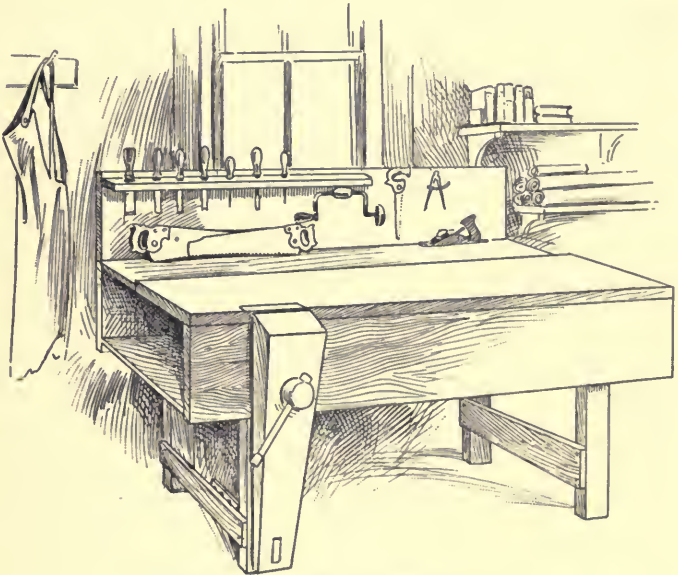
3. At night the body must make good the day's wear and tear by the removal of waste products and the repair of tissue. This is best done by relaxation, rest, and sleep in fresh air. Do not add fatigue by late hours.
4. Quick, hard, brilliant, nervous workers need more rest than slow, steady ones, and must be more careful to get it.
5. Get the habit of sitting well at work; it costs nothing but effort, and it pays.
6. Always stand with chest up; rise on the toes and shift the weight frequently.
7. Accept lower wages at another job if your work is too hard or too long. No one can repair you if you are run down too far.
8. If you must work at night and sleep in the day, get in your sleep first, putting cotton in your ears, if necessary.
9. Do not worry. Attack troublesome problems bravely, reach conclusions quickly and as best you can, then dismiss the matter from your mind. "Work while you work, and play while you play."
10. Do not be hurried. "Plan your work and work your plan."
11. If you cannot sleep, you probably are not following out the evening routine of Chapter III.
12. To avoid insomnia:—
 - (a) Clear the mind of the day's work. Think steadily of something different and pleasant.

- (b) Before retiring, take a short walk in the open air and twenty full breaths with light exercise.
- (c) Drink a glass of water, cold or hot.
- (d) Do not toss, lie still on the back, arms over your head, and breathe deeply.

CHAPTER X

AFTER HOURS

The end of the day. — At the end of the day, remember always to leave your bench, machine, or desk neat and tidy. Leave everything in such shape as to indicate to any



The work bench at the close of the day

one who may see it what kind of worker you are. If, for any reason, you are prevented from coming in the next morning, there will be no cause for confusion or delay in the

work. One never knows what a night may bring forth, so it is well to live each day "as though it were your last."

Don't quit work before your time is up. Many workers watch the clock as the day draws to a close, and trifle and idle away the last quarter of an hour, if not longer, as if that time did not belong to the employer as much as any other period during the working day.

When it is really time to leave, go quietly. In your eagerness to get out among the first, don't make the youthful mistake of pushing, crowding, and shoving aside your fellows. Apart from the rudeness and lack of consideration shown by such haste, it may bring serious results, especially where a great number of people are at work. Crowding and pushing frequently cause accidents at elevator doors, on landings or stairs, and at the exit doors of buildings.

Going home. — When you have finished the day's work, try to shut it out of your mind completely. The hours that belong to you before a new day commences should be used for rest and recreation.

If you are still at school, plan your time so that you will get the needed rest and come to school with the tasks all prepared to make a businesslike profit of the day's instructions.

In proceeding to your home, apply the same suggestions for health and safety as when you went to work in the morning. If you are an indoor worker, walk home if possible, giving your lungs a chance to expand and to get rid of the stale air of the workroom. If you live too great a distance from your work to do this, then get off the elevated or subway train a station or so before you reach your destination and walk the rest of the way home. This will cleanse your

body, set your blood to circulating briskly, and give you an appetite for dinner.

This little exercise will enable you to carry to the evening meal a fund of good spirits, that will add to your own enjoyment of the meal and cheer the other members of your family, who have also been working all day.

If, on the other hand, your work has so tired your muscles that you do not feel physically able to walk home, then, by all means, before eating, lie down flat on your back and rest a little while. This will give the blood a chance to



Make the evening meal a cheerful time

return from the overworked brain and muscles, and will put the stomach in better condition to digest the evening meal.

The evening meal. — Put away your work and your worries when you sit down to eat, remembering only the pleasant or humorous happenings of the day, which you can relate.

Do not treat your family in the superior manner so many young people affect, regarding their relatives as necessary evils and hindrances that must be endured, somehow. Remember always that the family is quite as necessary to your happiness and development, as you are to the family's; and that no matter what the environment is into which you have been born, it is within your power to make it better and brighter, if you desire to do so.

Your future happiness will be much greater if you carry with you the realization that you are doing all that is in your power to add to the welfare of the home folks. You will never regret sharing with them your pleasures, interests, and plans; while, on the other hand, they will be greatly benefited by being put in touch with the new methods and new ideas you are able to bring to them from the outside world.

Importance of recreation. — It is of the greatest importance to the worker to know how to play and to relax after the strenuous efforts of the day. The child may not need to be stimulated to play, but it is usually difficult for the grown-up person to find recreation that will benefit both body and brain.

Play keeps one active in body, mind, and spirit. Not only do games and sports improve the circulation, help to burn up the useless wastes of the body, and make the mind more active and alert; but they have a social value also, bringing us in touch with other personalities and teaching us to exercise self-control, fairness, patience, courtesy, and consideration for the rights and feelings of others.

Billiards, basket ball, bowling, roller skating, and other indoor sports are valuable; but, for the worker who spends

most of his time indoors, the out-of-door recreations, such as walking, boating, swimming, croquet, tennis, baseball, ice skating, and football, are even better, as they afford better light and air along with the exercise.

Every worker should have some one interesting recreation or hobby, as a safety valve, or outlet for superfluous energy, as well as a rest and change from the regular work. As a rule, the hobby will present itself without much effort on the part of the young person to find it. It will probably be something in line with one's natural tastes and aptitudes.

Music. — For instance, many young people have a natural talent for music and like to spend all the time at their disposal in practicing on some kind of musical instrument, or in singing. If you have a fondness for music and some skill in expressing yourself, by all means you should make the most of it.

You may find it helpful, as well as pleasant, to join or form, a musical club or society, where you can meet and practice with others who have the same liking for music. There will be an economy, also, in buying your music or in taking lessons, if you belong to a coöperative club of this kind. Every one so inclined should be able to procure instruction at an evening recreation center, church club, settlement house, or an evening school.

Whenever possible, go to hear good concerts or the opera, where you will be brought in touch with the works of the great masters. If you watch the papers, you will find that many fine concerts and organ recitals are given by the churches and other organizations, either free, or at very slight expense. During the summer months, many cities provide excellent musical programs, well played by bands

or orchestras, in the various parks or on the recreation piers. But you will not need to be urged to do any of these things. Your hobby will naturally suggest to you anything and everything that will increase your pleasure in it.

Amateur theatricals. — The same may be said of dramatic clubs and societies. If you have a talent for imitating well-known actors, or for expressing ideas and emotions, you will get a vast amount of amusement and instruction from the study and acting of good plays. Not only will you improve your manners and speech by such study, but you will also give a great deal of pleasure to other people, whom, from time to time, you can invite to your amateur theatricals. You and the rest of your company will be benefited by the criticisms of your audience, and you will acquire ease and self-confidence.

Moving picture shows. — It may be well to speak of the "moving picture" houses. This popular form of amusement has developed within the last few years, and is at once so cheap and so attractive that it has become the principal amusement and recreation of a great number of people. The physical and sanitary condition of the moving picture hall is very important to the health of those who frequent it. Many of these places are very dirty and badly ventilated, so that the effect is harmful; many of them are also very dangerous traps, if a fire happens to break out.

There is no doubt that moving pictures can be interesting, clever, and entertaining. They can also be made of great educational value. Scenes from foreign lands, pictures illustrating every step in the various great industries of the world, plays bringing to us a knowledge of the customs and scenery, not only of other lands but of every

nook and corner of our own great, many-sided country, dramatized versions of the great novels and poems, and of the important historical events of all times and all countries, — pictures like these teach us something, at the same time that they hold our interest and attention. The manufacturers of the best films in the market are beginning to realize the educational importance of moving pictures, and are giving us better plays all the time.

You will be able to judge for yourselves whether a moving picture play, or any play, for that matter, is good or bad, by the effect it has on you. If you are rested, entertained, and instructed, the performance is a good one. If it has a silly, flimsy plot, with a lot of rough action in it, or if it is a story of crime and violence, you will have experienced no benefit from the performance.

Economy. — The question of expense is one that must necessarily enter into the amusements and recreations of many workers. When one is starting out in the business world, there is very little of one's wages left for indulging in amusements, after buying food and clothing. Perhaps, if you turn your money into the household, you will have nothing left, or only what can be spared from the household fund after expenses are paid; if you pay all your expenses yourself, you will have greater freedom in spending your money, but you may not have much left for amusements after providing for the necessities of life.

Dancing. — Many young people, whose homes are crowded, or who lodge in small rooms, find their principal relaxation in going to the dance halls. Dancing is a splendid exercise and is a social diversion as well; but the ordinary dance hall is not a good place in which to spend your

evenings. Many of the halls are mere excuses for selling drinks ; and undesirable acquaintances are made there who may lead one into vice and crime. It is better to form a dancing club of your own friends and acquaintances, meeting at the members' homes by turns, on the recreation piers in summer, or at some of the settlement houses and clubs where dancing is encouraged. In this way you will escape the dangers of the dance hall and will have a much better time with people you know. Don't visit any dance hall where drinks are sold ; make this a rule, and you will be glad of it.

Walking. — Walking can be made a very interesting exercise in summer or winter, by forming a club of people who are fond of outdoors, and then starting off for some destination agreed upon. Your Saturday half-holidays and Sundays will give you opportunities for longer excursions. It is much pleasanter to walk in groups, or with a good companion, as the conversation, laughter, and song add enjoyment to the benefits received from this form of exercise. There are so many parks and interesting historical places to visit in and around most cities, that you could keep up this practice of walking to a different place each time, particularly on the half-holiday and Sunday trips, indefinitely.

Gymnastics and athletics. — For those who prefer systematic physical training, the different branches of the Young Men's and Young Women's Christian Associations, and similar organizations, offer splendid opportunities in the way of gymnasium work.

Of late years the school buildings are being used in the evenings for recreation, gymnastics, games, basket ball,

checkers, literary clubs, debating clubs, chess clubs, and the like. In some places regular receptions are held weekly and social dancing is arranged for. If there is such a center in your neighborhood, you should attend it, by all means, and join yourself with those who have like interests.



Provisions for recreation supplied by factories. — Some large industrial establishments, factories, and stores have decided that it pays to

provide the employees with recreation rooms, gymnasiums, swimming pools, libraries, and reading rooms, for purposes of play and relaxation after work



The evening recreation center

hours. One of the largest pickling and canning plants in this country has an auditorium, where, every Monday, the employees meet for recreation and a social time. There are classes in dancing, cooking, sewing, and a swimming pool, gymnasium, library, and roof garden. In another estab-

lishment a branch of the public library was installed, with books in five languages, and a reading room was equipped with magazines and papers, which has proved a popular resort for the employees. In addition, study courses have been started which the workers have taken up with much interest.



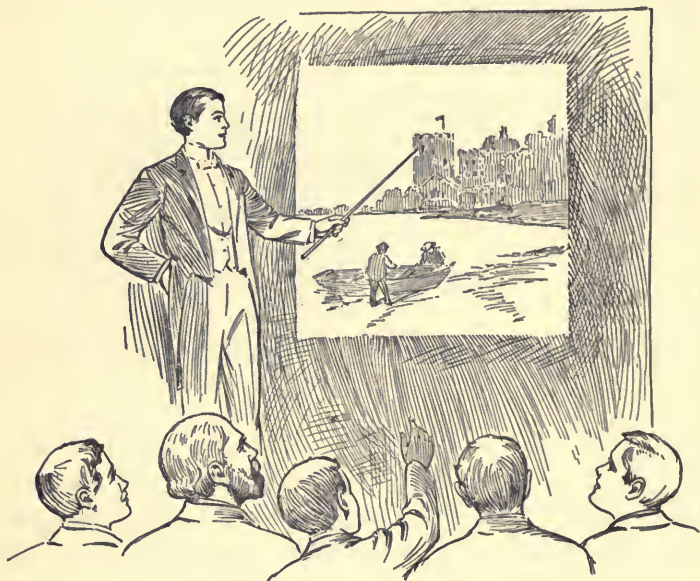
Factory recreation grounds

One large company engaged in the manufacture of worsted yarns have provided, in the vicinity of their plant, a piece of ground, which has been laid out for tennis and other forms of athletic exercise. Here they have also erected a clubhouse containing baths, reading and recreation rooms, and other popular features. The building has an open porch on the first floor and a balcony on the second, from which the games and contests that take place on the athletic field may be witnessed.

Several of the large department stores have formed evening classes of employees desiring to take up special studies, bands, orchestras, singing classes, dramatic and literary clubs, which have commencement exercises on the com-

pletion of the course of study, or which give, from time to time, public exhibitions and concerts.

Courses of study. — It is not necessary for the worker to feel that, because regular school days are over, his educational advantages, therefore, are at an end. The public



The lecture courses are interesting and profitable

school systems of many cities offer unusual opportunities in their night schools, where one may receive instruction in the arts and sciences, languages and literature, as well as in the more practical branches that are of distinct commercial value to the young man or woman who wishes to advance.

Free lectures. — In addition to the regular classes, there is also much to be learned from the free lectures which are

given in the different lecture centers in some cities, under the direction of the Board of Education. Many of these lectures are illustrated with lantern slides. One may listen to very interesting accounts of travel; studies of the art of great painters, musicians, and writers, illustrated in many instances with selections from their works; popular science talks made easy for the comprehension of all; folk songs and stories; lectures on political movements and great events in history; and many other interesting and instructive subjects.

Museums. — In many cities there are museums of art, history, and science where a study of the collections gives the visitor more information in an hour or so than could be obtained from the reading of many books on these subjects. These are usually open on Saturday evenings, as well as on Sundays, for the benefit of those who are employed during the week days; and the present system of arranging exhibits according to historical periods is very valuable to the student who has not much time at his disposal. In New York City there is a Museum of Safety which is of special interest to those workers who are brought in daily contact with dangerous machinery and industrial processes. Here one may find all sorts of safety devices for the prevention of accidents and the safeguarding of life, limb, and health.

Libraries. — Then there is the inexpensive recreation and pleasure to be had from reading. The free library system of most cities and towns makes it possible for every one who wishes to do so to take out a reader's card. One may drop into a library for study and reference work, to look over the latest magazines, or to select books to take home.

In this way one may keep in touch with all the best modern books as well as with the great books of all times.

Benefits of play. — Remember that a live interest in something outside your work will keep you healthy and happy. Every worker needs to get away from his work for a little while, in order to return to it with renewed interest and energy. The mind needs rest and change, by giving it something else to think about; and the muscles need the rest and change afforded by exercise and play. Rest, change, and play, all of these will enable the worker to recuperate from the labors of the day and will put him in good condition to resume his work the next morning.

Above all, the muscles, brain, and nerves need a reasonable amount of sound, refreshing sleep. Do not think you can stay up all hours, spending your evenings in dissipation, and then force your body and brain to do their work with the help of stimulants.

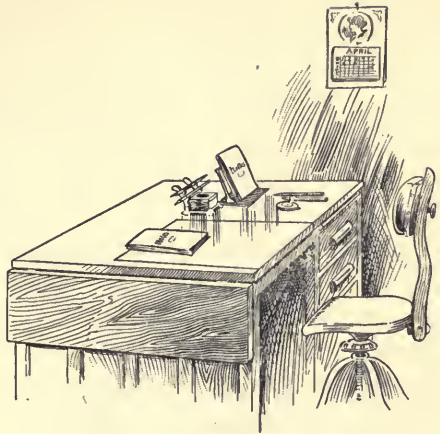
The best restorative is sleep, the best stimulant is exercise or play; and the happy, efficient worker is the one who has learned how to invest, and not to squander, his working capital of health and energy.

AFTER THE DAY'S WORK

1. Leave your belongings in order.
2. Clean up and make yourself presentable; nothing is more refreshing.
3. Think of something else besides work.
4. Walk home, choosing companions who are cheerful and by whose association you may profit.
5. If tired out, rest flat on your back before dinner.

6. Make your family or associates at dinner glad you are present.

7. In the evening, "find your hobby and ride it." Try to get some vigorous exercise at least twice a week.



An orderly desk

8. Seek wholesome places and companions. Do not damage your self-respect in search of amusement.

9. Follow some reading or lecture course, or study that will prepare you for the next higher job. If you have lessons, get them done before you do anything else.

10. To bed early, observing the routine of Chapter III.

11. Have you done a good turn to some one to-day?

CHAPTER XI

HOLIDAYS AND OUTINGS

Effects of too much work. — As has already been pointed out in the preceding chapter, a certain amount of play is absolutely essential to the health and well-being of the worker. Work in itself is a factor in good health and happiness, but an unusual amount of work or a repetition of the same monotonous efforts, physical or mental, may be responsible for a breaking down of the body, or, at least, a loss of interest in the work performed.

Physical exercise, or muscular activity, may be had in the worker's daily routine; but this kind of exercise becomes wearisome, and, besides, only one set of muscles or brain cells may be used. This calls for a complete change of activity.

It is for this reason that habits of play are so important. They serve to equalize the body's various activities, not overstraining certain organs and allowing others to grow weak or atrophy, through lack of use. Play should naturally call into use and expression the neglected cells and tissues, giving them a chance to develop with the other portions of the body exercised in the day's work.

Vacation. — While the body and mind need change and rest after each working day to fit and equip them for the next day's labor, it is of the greatest importance to the worker to have, entirely for his own use and recreation, a

certain period during the year, when he can drop all thought of work from his mind.

Recreation really means a re-creating, a making over of tired muscles and brain cells. Mind and body alike need to be revitalized after a year of steady work. Employers



A vacation camping party

are coming to see, more and more, the practical benefits to be derived from allowing their workpeople opportunities for complete change of scene, rest, or play, and are allowing yearly vacations, with or without pay.

The most successful vacations seem to be those which provide a complete change from the ordinary daily life, new scenes, new faces and interests, without taxing the physical powers of the individual to any great extent, and which allow most of the time to be spent out of doors.

It is a common fault of Americans that they take their play strenuously. Vacation often provides so much opportunity for exercise and entertainment that many overdo and draw still further upon a vitality weakened by the long winter work. Early hours are always essential. We should never need to recuperate after a holiday or a vacation.

A change of scene. — For those workers who are able to get away for one or more weeks each year, it is a wise plan to select a place and activities as different, or as far removed, as possible from the ordinary daily environment. The weary mental worker needs to spend the vacation out of doors and in ways that will exercise the unused muscles; on the other hand, the tired physical worker may receive greater benefit in resting from muscular exertion.

Trips to the seashore, mountains, or other interesting places which one has no opportunity to see during the working year should be indulged in and planned for during the rest of the year. It is not extravagance to include the cost of a vacation trip in the personal expenses, for the health and efficiency of any person constitute his working capital.

Perhaps, if your wages are too small or the living cost too great to allow for the trip you would like to take, you can arrange a walking tour to some interesting place at such a distance as will permit a safe return within the limits of your vacation. In England and Germany, walking trips as vacation jaunts are much more common than in this country. Such a trip, with one or more congenial companions, equipped with stout boots, walking sticks, and as little luggage as you can possibly get along with, will be less expensive and bring you greater returns in the way of health

and energy than the same time spent at some popular summer resort.

Many workers are not given vacations with pay, and, therefore, feel that they cannot afford to take the time off from their work. This is a great mistake; but if, for any reason, it seems impossible to take the rest and change of a regular vacation in the summer season, it still lies within the means of the most economical worker to find recreation at home.

Saturdays and holidays. — The majority of business places grant the Saturday half holiday to their employees, at least during the hot summer months of July and August. This half holiday with the succeeding Sunday can be profitably used by the tired worker in building up health and energy.

An occasional boat trip to any near-by resort will give one several hours of rest and the benefit to be derived from the fresh air. These trips are usually not expensive, and if one wishes, it is possible to take one's lunch along, and avoid the high prices at which food is usually sold at these resorts. The quieter places, with which nearly all city boys and girls are familiar, are to be preferred to the noisier ones where the amusement tends to excite rather than to rest.

People come from great distances to visit the summer resorts in the vicinity of large cities; but we who live nearest sometimes fail to appreciate them because we are so used to them or do not enjoy them in the right way. Going to Coney Island, for instance, is a habit with many young people in New York. If they would go to the quieter resorts, not so much with the idea of spending money on foolish shows and amusements as to benefit by the sea

breezes, the bathing to be found along the beaches, and the change from the hot city, they would come home less tired and more refreshed.

The Saturday half holiday can be spent to advantage in the public baths and swimming pools, in the parks, or in short trolley excursions. In almost every large city there may be purchased trolley guides which show scores of beautiful and interesting places which are easily accessible.

There are so many such places to be visited in New York City, for instance, museums, parks, collections, historical places, and other points of attraction that serve to make it the goal of many people who come from great distances to spend their vacations here, that we may find it to our advantage to use a little time in getting acquainted with our own city.

Probably not half of the boys and girls in New York City are familiar with the interesting places within their city's limits which draw so many visitors. It would be a good idea for the stay-at-homes, or those who cannot afford to take a regular vacation, to begin to make little journeys to the places that are featured in the guidebooks.

Many people do not know that the United States government has made maps of almost every crossroad, river, hill, and stream in the United States, and that any one of these maps may be obtained by forwarding five cents to the Director of the Geological Survey, Washington, D.C.

Trips about New York City. — In New York City, one might plan a series of outings to historical places in the city limits, trying in imagination to retrace the events they serve to commemorate. To visit places like the Manor at Van Cortlandt Park, or the Jumel Mansion, both within easy

reach, by means of the subway, gives one better insight into manners and customs long past than the reading of many books on the subject. The brief descriptions given by a good guidebook, however, will tell the main facts you want to know.

Then there is the study of natural history afforded by the great Zoölogical Garden at Bronx Park. Quite apart from the Zoo, the Park is a pleasant, restful place in which to spend a day. Boating can be enjoyed on the river, and there are numerous places where one may sit down and enjoy luncheon out of doors. The botanical collections in Bronx Park will give much pleasure to those who delight in rare plants; while the pleasant, shady walks, leading to the Falls and other interesting spots, will prove beneficial to body and mind.

Making a vacation profitable. — Even if you are obliged to stay at home when other workers, more fortunate or foolish, as the issue may prove, leave it in the summer season, you have it within your power to spend your spare time in so pleasant and interesting a manner that you may be laying up a greater store of health and energy than the young people who come back tired and weary from having too good a time at the mountains and other regular summer resorts.

Besides the economy of a vacation spent in this manner, you will have gained a store of first-hand information about your vicinity that may prove to your advantage later on, and will have demonstrated to yourself that, after all, the sources of amusement and recreation do not lie outside of, but within, the individual.

Athletic fields. — For those who wish to indulge in sports

and games, there are plenty of near-by fields either in the parks or in the suburbs.

Many persons who live in the country do not have the advantages for exercise and play that are afforded by the city parks and playgrounds provided for the express purpose of recreation.

Boy Scouts. — Connected with many churches and societies are troops of Boy Scouts and similar organizations

for girls. These plan to spend all available time out of doors in "hikes," tramps, and camp.

No young man or woman will find a better opportunity for out-of-door recreation than these provide. If there is no such organization in your vicinity, one can easily be formed by enlisting the interest of some older man who is willing to give his advice and assistance.

What coöperation has brought about. — Some firms have found it wise to

offer exceptional inducements to their employees to spend their vacations sensibly, building up their bodies and laying up a store of energy and enthusiasm that will express itself in efficient, happy work during the remainder of the year. These employers provide special holiday outings during the



Equipped for a "hike"

summer, or equip and maintain camps and seaside homes to which the employees may go for periods of one or two weeks. If your employer thinks it worth while, so should you.

One large manufacturing plant arranges its vacation periods on the plan of one day's vacation with pay for every calendar month during which the employee has been regular in attendance. Workers, therefore, who have been faithful through the year receive a vacation of two weeks with full pay.

One of the largest publishing houses in the country encourages regular daily attendance and punctuality among its employees, by giving the preference in making up the vacation list to those who have been most prompt and regular. Each absence from work counts two points and each tardiness of less than one hour one point against the record of the employee. The workers who have the least number of points charged to their records are given first choice in the selection of the vacation period. This system applies to those who have been in the company's service a full year and over. In the case of employees of less than a year's service, the points for regularity and promptness are reckoned in proportion to the length of service. Employees who have been with the company for at least six months are entitled to a vacation, at a convenient time, between June first and September first in each year, on the basis of one week day for each month's service during the year.

A large department store with branches in several cities maintains a summer camp of five acres for the use of its employees. The boys who comprise the cadet battalion live in tents during their summer encampment of two weeks.

The house erected on this land as headquarters for the camp is used during the rest of the season as a vacation home by the men and women of the establishment.

A great many firms follow the practice of arranging an annual outing or picnic during the summer for their employees, either at their own expense or in coöperation with an association made up of the workers. These events usually take place in connection with athletic contests and games for which prizes are offered.

For the purpose of encouraging athletic sports and games among the employees who are able to avail themselves of the privileges after hours and on Saturday half holidays, in addition to the special meets arranged each year, a great many firms are purchasing and fitting up vacant lots near the factory building.

Coöperative outings. — Coöperative outings can be arranged successfully by the employees of large industrial establishments, for themselves and their families, at much less cost than if they were to undertake the trip separately. The Men's Welfare League of a manufacturing company of world-wide reputation has arranged these coöperative outings very successfully. Not long ago it planned a camping trip to Port Huron, Michigan, for 1700 employees, their families, and friends. August was chosen as the best time for the outing, as the factory was closed during two weeks of that month. The campers were transported over 500 miles and were lodged, fed, and had a good time for a period of nine days, at the low cost of \$7.80 for each person.

On arriving at the camp, the employees found their supper ready for them, having been prepared by forty cooks and waitresses from the establishment who had been sent

on in advance. The meals were served in a large dining tent accommodating 900 persons at once.

The camp was laid out in streets, with rows of tents numbered to correspond with the accommodations selected by the campers before leaving the home plant. Most of the baggage, which had been sent on ahead, was waiting for the campers when they reached their destination.

During the vacation period, this small army of people lived in their tents, swam, rowed, danced, or spent their time walking in the woods, thoroughly enjoying the rest and change and laying up a supply of energy to carry them through the rest of the working year.

Of course a few cases of sickness were found to occur even in those healthful surroundings, but the factory nurses and doctor were on hand to care for those who became ill.

This outing was so successful that it has been repeated, and the manufacturing company, believing in the practical benefits derived from the rest and recreation enjoyed by their working force, coöperates to the extent of paying a portion of the railroad fare of each employee and members of his or her immediate family. A married man is allowed one ticket for himself and one for his wife and each of his children; a single man is allowed one ticket for himself and one for his father, mother, or sister. Other members of the immediate family may take advantage of a special rate for the outing.

FOR THE HOLIDAYS

1. Plan your Saturday, Sunday, or holiday well in advance.
Get out of town.
2. Do you know your own town and vicinity?

3. Walking trips are more fun than trips by trolley.
4. A good time comes from what interest we have in things, rather than in the things themselves.
5. For a vacation : —
 - (a) If you live inland, go to the shore. If you live on the seacoast, go to the mountains.
 - (b) Select a healthy place. Write to your State Board of Health for a list of approved localities.
 - (c) Select a decent place. Your spiritual adviser, pastor or priest, will help you.
6. Do not play so hard that you come home worn out.
7. Our best times often come from helping others to enjoy themselves.

CHAPTER XII

CHOICE OF AN OCCUPATION

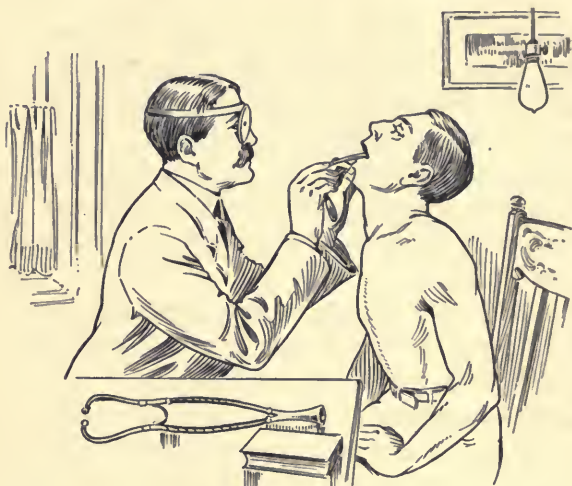
Making a wise start. — The successful career of an individual depends largely upon the proper choice of an occupation; for those in good physical condition, it is only a question of natural tastes and aptitudes. Boys and girls with slight physical defects, or who are predisposed to organic troubles, should consider with the greatest care the effect the occupations selected by them will have on their future health.

If a wrong choice is made, a second selection may become necessary and the worker lose time and training. This might have been avoided by a right start.

Physical examination. — Before you take your first job go to a physician and ask for a thorough physical examination: eyes, ears, chest, nose, throat, heart, lungs, kidneys, back, hips, legs, feet, and genital organs. It is better to know a weakness in advance than to suffer irreparable damage when it is too late. This examination may, in some cities, be made by the school physician before you apply for working papers.

Lungs. — Many industrial occupations are sources of diseases of the respiratory or air passages. The worker may be afflicted at first with only a simple cold, nasal inflammation, or sore throat, but these may lead to irritation of the lungs, and finally to tuberculosis. Among the causes of diseases of the respiratory system may be mentioned: —

1. Sudden chills, due to wet or overheated conditions of the body, which are most frequently met with in mines, smelting works, foundries, furnaces and kilns, glass works, earthenware and china works, sugar refineries, candy factories, breweries, laundries, bricklaying, and stone masonry.



The physical examination

2. Gases and vapors, especially from acids, chloric, sulphuric, nitric, and hydrochloric acids, phosphorus, iodine, bromine, and sulphuretted hydrogen, all of which are handled by workers in the chemical industries, metal foundries, metal oxidizing, lacquering, and the manufacture of cellulose.

3. All the dusts which injure the delicate membranes of the air passages:—

(a) Those which are round and smooth and harmless in themselves, but which, inhaled in large quantities, are hurtful, such as rust, flour, etc.

- (b) Dusts which are uneven, rough, sharp, and pointed, such as stone, metal, glass, and wood dusts. These are met with in the textile industry, stonecutting, stone breaking, metal and glass grinding, wood-working, and similar trades.
- (c) Those dusts having chemical properties, such as lead, brass, basic slag, arsenic, etc.
- (d) All city, house, and factory dust, for it carries microbes, like the bacilli of tuberculosis, diphtheria, and germs of scarlet fever, etc.

Therefore, weak, flat or narrow-chested persons, or those afflicted with catarrhal or bronchial troubles, and those already in the first stages of tuberculosis, should avoid the trades where they come in contact with these irritating dusts. They should not work at file cutting, painting, glass and metal grinding and polishing, stonecutting, paper hanging, gilding, typesetting, woodworking, grinding and cutting of bone and mother-of-pearl, or in earthenware and china factories, because of the harmful dusts they are obliged to breathe; neither should they seek employment as cigar makers, tailors, shoemakers, engravers, and jewelers, because of the stooped position they are obliged to take while at work, thus cramping the lungs; nor should they, on account of the constant expansion and strain of the lungs, earn their livelihoods as glass blowers or performers on wind instruments. They should seek employment out of doors, and by all means the narrow chest should be made ample by regular exercise, deep breathing, and careful regulation of the daily life. There is always room for the worker in the country.

Heart. — Persons whose hearts are weak should not engage in occupations involving great strain upon this organ. Constant and heavy work does not necessarily bring about changes in the heart's activity or abnormal conditions of the heart muscles. A heavy strain, how-

ever, makes the heart work faster, the beats increasing from 100 to 120 per minute. In a healthy person, this expansion of the heart's activity resumes its normal condition during the period of rest and sleep. To equalize the expansion and the following reaction, the muscular fibers of the heart increase in number and thickness.



Heavy work requires a strong heart

If heart overstrain is continuous, the natural reaction through the increased size of its muscles may not be effective. In that case the general health suffers and the heart itself is likely to fail.

Those whose hearts are in any degree weak should not seek occupations where there is much lifting or carrying of heavy loads, or where there is a constant strain on certain sets of muscles. Such persons are not physically fitted to become bakers, brewers, butchers, coopers, woodworkers,

metal grinders, millers, carpenters, weavers, stone masons, or machine operators. They should engage in some light muscular work, but never neglect regular daily exercise.

Commercial occupations. — In the various commercial occupations, the wholesale and retail trades, the dangers to health are not so great; but there are certain conditions which the persons seeking employment in these positions should bear in mind.

Retail stores for the most part require constant standing and, as a rule, long hours of work. Many commercial establishments, particularly the importing and wholesale houses and salesrooms, are often damp and insufficiently heated. Under these conditions only the closest attention to health regulations will keep the body well. Inform the management of the trouble and look out for another place if your health is threatened.

In the wholesale and storage houses, physical and mental exertions depend, of course, on the responsibility of the position. As a rule, the services required are varied and changing in character, giving the body greater freedom and exercise. In some warehouses and wholesale stores there is much handling of dusty materials, such as dyes, paints, and textiles, which is not so favorable to health. In addition, the handling of heavy wares, such as iron, bales of cotton, and cases of goods, is unfavorable only to persons who have any kind of heart trouble.

Sedentary occupations. — Bookkeeping, correspondence, and clerical work in offices are sedentary positions, and exercise must be taken regularly after hours and as often as possible to make up for inactivity and consequent sluggishness. Attention to the proper posture for sitting

(Chapter IX), will prevent much ill health. Many offices are poorly ventilated and overheated, so that the change

from the dry, inside air to outside conditions, particularly in cold or wet weather, may cause ailments and disease of the respiratory passages. The cold morning and evening splashes should prevent all of that.

Persons who have flat chests or weak lungs should be particularly careful about the posture if they must sit for many hours at a time, as the cramping of the lungs and



Proper posture for good health

the lack of fresh air are favorable conditions for the development of tuberculosis.

Feet. — Persons who have broken-down arches or who suffer from varicose veins should not select occupations where they will be obliged to stand for hours at a time. They should not seek employment as motormen, conductors, bakers, or in stores and laundries, as these occupations require continual standing. The wearing of special shoes to support the arch of the foot, and of elastic stockings to

relieve the varicose veins, will make those who are already employed in these occupations much more comfortable.

Eyes. — Poor eyesight seriously interferes with one's success, particularly in those trades requiring close application. Many diseases of the eyes are the results of inflammation in very early youth, when, with a little care, the impairment of vision might have been avoided. For those who are nearsighted, or who have any other weakness of vision, the selection of an occupation is of great importance. There are certain trades which increase the diseased condition of the eyes. Dusty trades, or those in which one comes in contact with heat, steam, vapors, and fumes, are especially bad for the worker already suffering from weak or inflamed eyes. In occupations free from dust and fumes and where the worker has plenty of fresh air in a moderate temperature, the chances are that he will be able to do his work with comfort and satisfaction.

Persons who have vision in only one eye should not select occupations where they are obliged to make accurate measurements on fine work requiring great care, or where they become subject to conditions which may cause the loss of the remaining eye. Watchmakers, engravers, tailors, dressmakers, chemists, and draftsmen, all require good eyesight, as the strain on their eyes is greater than in most of the trades. Those who are color-blind should not make the mistake of entering occupations where a quick distinction of colors is necessary.

If there is any reason to suppose that the eyesight is imperfect, before entering any trade or occupation, the eyes should be carefully examined by a skilled oculist, as nearsightedness may be due to weakness of the eyes or to

astigmatism, both of which conditions are easily remedied by the wearing of suitable glasses. With the aid of glasses, most of the trades and professions are open to all who are otherwise fitted or trained to engage in them.

Throat. — Persons suffering from throat troubles should not, of course, select occupations requiring unusual exertion of the vocal chords and muscles, as these may become permanently paralyzed if overstrained.

Skin. — Many diseases of the skin affect the hands, arms, and legs or other portions of the body and so do not actually disfigure the sufferer; but such diseases may be serious enough to interfere with the selection of certain occupations which would aggravate the condition. For instance, bricklayers, tanners, and butchers are subject to skin disease through the handling of cement, hides, and much hot water. Persons afflicted with any inflammation of the skin should not engage in these occupations.

Those who are liable to suffer from eczema should be careful not to come in contact with acids, dyestuffs, and other materials which might increase the trouble and make it necessary for the sufferer to give up his work entirely; they are not fitted to become bakers, bricklayers, painters, lacquerers, polishers, cooks, or laundresses, or to do any work where the hands are kept long in water.

Persons with hands that perspire freely cannot do good work as engravers, watchmakers, fine instrument makers, or as workers in any of the fine metals. They are particularly unfitted for the handling of delicate materials, such as laces and linens, and for such fine and clean handwork as millinery, embroidery, sewing, bookbinding, and fine leather work.

So it is well to know your physical condition before deciding upon your life work. Do not rush into a position blindly, with little regard for your fitness for that particular kind of work. Choose wisely, and if your physical equipment happens to be below the average, you may yet be able to do useful work and, in time, outgrow, rather than increase, your limitations.

CHOOSING AN OCCUPATION

1. Choose an occupation with reference to your own health and abilities.
2. Get a physical examination from a physician; find out any physical weakness which should keep you from any particular kind of work, even if you feel perfectly well.
3. Avoid trades where the worker is not protected against sudden change from hot to cold, gases which are poisonous, and dust of any kind.
4. Seek the trade where your physical handicap will not count against you; where you can put your best energies into your work; where you can study to rise to the next higher position.
5. If forced to work under unhygienic conditions, make the matter known to your employer; follow the more strictly all rules of health; seek other employment if conditions are not changed.
6. If you have "weak lungs," make them strong and try to get employment out of doors. Never go to a physician who advertises.

CHAPTER XIII

OCCUPATIONAL DANGERS: ACCIDENTS

On the way to work. — On leaving home each day, proceed to your work in the safest way possible. Take plenty of time. Do not rush and in your haste jump on or off



Street traffic is regulated for your safety

moving cars. Most of the street car accidents are due to this recklessness on the part of passengers. Don't try to interfere with the traffic regulations in crowded streets.

Wait for the signal of the police officer whose duty it is to guard the safety of the public, and go with the traffic.

You may add your mite to the general welfare by kicking out of harm's way every bit of banana peel or fruit skin you find lying on the sidewalk. The banana peel has been the cause of more sprained and fractured wrists and arms, broken ankles and legs, and cracked ribs than the surgeons care to count.

Do not cross a street of any description, particularly those with tracks, without first looking and listening for approaching cars, engines, and other moving machines. Do not catch or jump on cars and engines, or cross trains in motion, except when your duties absolutely require you to do so.

Safety, the first consideration.—In every industrial establishment, the question of safety should be the first consideration. The employer is benefited, in that he has the continuous service of skilled and careful employees and escapes the heavy expense of damage suits; on the other hand, safe conditions are only fair and just to the employee, who is able to work in greater security, free from the strain of fear which is connected with dangerous work. For example, a woodworker returning to work, after a serious accident to his hand, exclaimed :

“Every time I put a board through the planer, I have a queer feeling at the pit of my stomach! I'm so afraid the wood will kick and hurt me again.”

Under such conditions, a man cannot do his best. The worker also fears a loss of wage-earning capacity which may throw him and his family upon charity.

Many mills and plants are now giving a great deal of

time and attention to questions of safety for their work-people. In 1906, one of the largest corporations in the United States, employing upwards of 200,000 people, de-

cided that it must reduce the deaths and injuries due to accidents in its works.

Not only were the managers and superintendents of works instructed to plan for the greatest degree of safety in the mills and shops, but the workmen themselves were asked for suggestions in the way of making safe the dangerous machines and processes used in the industry.

The result of this corporation's systematic efforts for safety is shown by the re-

duction, in 1910, of at least 50 per cent of the deaths and injuries in their plants. One superintendent reported that he had reduced his accident list 60 per cent.

Methods of coöperation. — Committees of Safety, made up of officials and workmen, inspect the shops, mills, and yards regularly. They examine the tools of the workmen,



Protected saw

and workmen are also instructed to report just as soon as the heads of tools become burred or ragged. Chips flying from defective tools may cause serious eye injuries, although many employees think it foolish to take up a question of this kind, claiming they have never known any one to be injured in this manner.

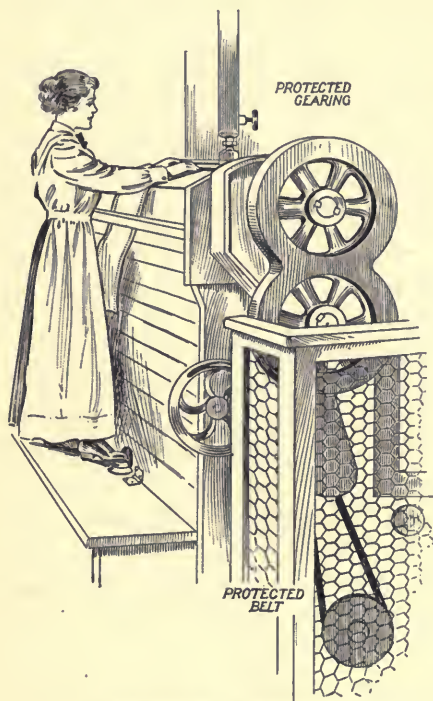
Another method of teaching safety and caution is to give warning to the man seeking employment that, unless he is willing to exercise care for himself and his fellow-workmen, he will not be given a job. In one plant, such a notice is posted in the employment office in six different languages.

Weatherproof signs, displayed just inside the gates, request every employee to be on the lookout for defects in machinery or tools, carelessness of other employees, or dangerous conditions anywhere in the grounds or works. Any reports that are made are treated as personal matters between the superintendent and the person giving the information.

Never become too familiar with danger. — Do not stand too near or under hoists, cranes, conveyors, tackle, buckets, ladles containing molten metal, weights, or material of any kind that is being raised, carried, or lowered, if you would avoid accidents.

Protections against danger. — There is always a grave danger to the worker exposed to unprotected gearing or car wheels. If he stumbles and falls against them, he may lose a limb, or be ground to death. Dangerous wheels like these should be protected with cover guards, or shields. It is possible to do this and not to interfere with the operation of the machine. All belting and shafting should be

made safe by protecting guards or rails. That is the employer's duty. But it is your duty, if you find dangerous machines unguarded, to use special care and caution and to notify your employer. You may lessen the dangers



Danger reduced to a minimum

from protruding screws, unguarded belts and shafting, gears and cog wheels, by wearing neat, well-fitting work clothes and avoiding flowing ties, torn sleeves, and unbuttoned blouses. Do not wear jewelry on your hands or neck if you operate a machine.

If you are obliged to work near unguarded saws and planers, flywheels, belts and shafting running through or near floors, or other dangerous places, where the floor is worn and

made slippery with grease and oil, you can save yourself from falls to a great extent by wearing rubber heels on your shoes. Do not walk through or over low running belts, or reach across rapidly moving parts of machinery. Do not attempt to stop a machine by grabbing at the belt.

No matter is too small to receive consideration and attention where safety is concerned. Worn floors, material piled too high or carelessly, the lack of railings, poor ladders, windows which should be cleaned to admit better light, all of these, directly or indirectly, may be the causes of serious accidents.

There is a particular need for safeguarding presses and stamping machines, which are the cause of frequent accidents. A certain brass shop, in which 203 women were employed, showed an accident rate of 26.6 per cent among them, while another shop, employing 129 women, showed an accident rate of 11.63 per cent. Both of these were what may be called high-class factories, but in the second one machines had been chosen with the least hazard and even then additional safeguards had been provided.



Safety device for a stamping machine

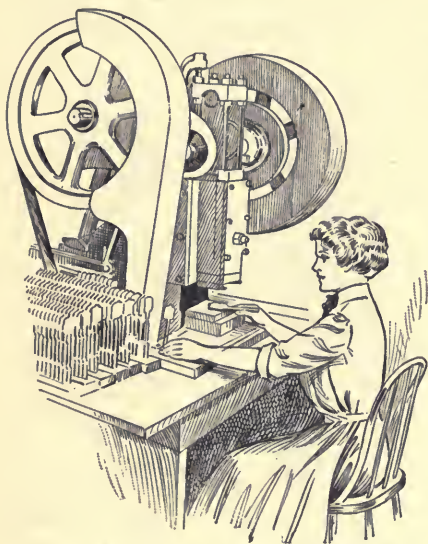
A good illustration of the difference in safety caused by attention to a single detail is shown in a comparison of two factories using nearly the same number of presses and producing almost the same kind of goods. In one a safety device was used, which was not found in the other. In the first, in one year, out of 187 women employed, only 3.21 per cent had been injured; in the other, not using the

safeguards, out of 150 women employed, 13.33 per cent suffered accidents.

Causes of accidents. — A great many accidents are attributed to “carelessness on the part of the worker.” But very often it happens that an excess of care results in the same accident. And this is especially true in the case of

new and inexperienced workers, who must use a great deal of caution and common sense, if they would escape injury.

A power machine worker must, for the sake of safety and efficiency, become more or less automatic. He must not do his work with a tense nervous system. The unskilled beginner, knowing the machine to be dangerous, and anxious to show him-



Protected belting on a stamping machine

self equal to the task, tensely waits for the movement of the machine or press, and frequently, in his anxiety, falters or makes a mistake, resulting in mangled fingers, a lost hand, or some worse injury. As practice continues, the tension gradually is lost, the worker can do his work more safely than when he was so painfully concentrated on it, and acquires a rhythmic movement in doing it.

On the other hand, the trained, experienced worker is not free from accidents. For instance, in operating a stamping press, the fingers adjust the object to be cut or formed, and then the foot presses a releasing lever. After a while, these motions become automatic. One follows the other without the worker thinking of them. Suppose, however, the machine fails to work or the material is rough or faulty, or something else interferes with the first motion. It is very seldom that the worker can instantly stop the second motion to which he has become accustomed. His nervous system has been trained to do the second part of the operation automatically. A serious accident may result.

In such a case as this, the only safety is in providing the worker with a safeguard. There are many good and simple styles of safety devices for presses and stamping machines.

Such safeguards give the worker a feeling of security, relieve the tension, prevent accidents, and are an economy for the employer, for in addition to doing away with damages, or the loss of a skilled employee, the output of the machine is greater.

It is difficult to say just how far a worker is responsible for an accident, particularly on an unguarded machine. The effect of bad light, impure air, too great speed, weakness, and fatigue must all be considered before blaming the worker for carelessness or negligence. The conditions necessary for safety should be provided by the employer.

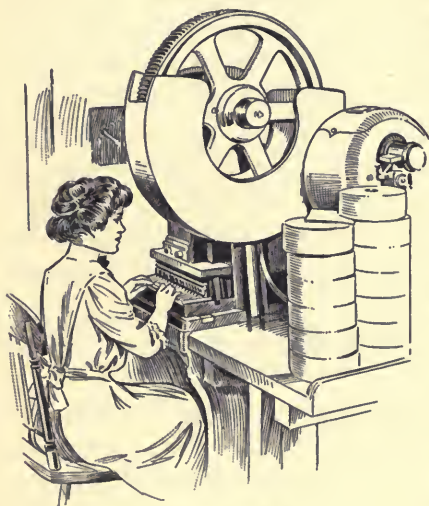
Taking risks. — Women are generally more careful than men, less given to removing the safeguards which are provided them, and more attentive to their surroundings; in fact, they display a tendency to avoid danger when working on a machine which is known to be very dangerous. But

in the matter of taking risks, they are much more reckless than the men. Taking risks includes a number of foolish actions, such as cleaning a machine while in motion, attempting to adjust screws and belts without stopping the machine, experimenting with another person's machine, and disregarding orders.

The most important cause of accidents to both men and women is in connection with the material, either in in-

serting the work, removing it, or clearing away the scrap, which brings their fingers too dangerously close to the descending die. In all these cases, safety devices would prevent accidents and loss of fingers or hands.

If you work on presses, stamping or cutting machines, never try to remove material from under the die with your fingers while the power is on. If a hook



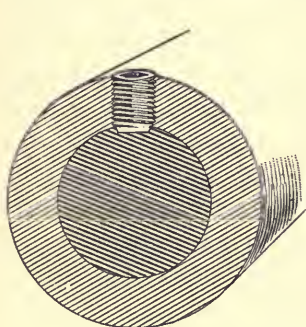
Protected gearing

is not given you for this purpose, you can easily make one from bent wire and so avoid the danger of cutting off or mashing your fingers.

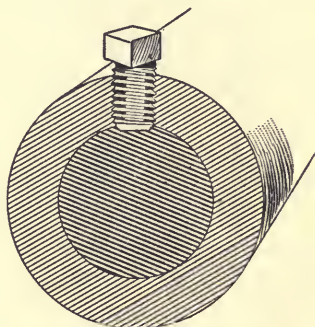
Inexperience. — A great many accidents happen on the first day at work. In fact, a considerable proportion of all the accidents to press operatives happens during the first

week at work, and over half of these during the first day. When going to work at a new job pay the strictest attention to instructions, particularly those which relate to your safety, and follow them.

Overspeeding. — In most of the silk and cotton mills, overspeeding of the machinery is the most common cause of accidents to the workers. Accidents also result from improperly placed or unguarded belts and shafting and set screws. Even when made safer by using hollow set



Hollow set screw



Projecting set screw

screws instead of projecting screws, a shaft still needs very careful guarding. For instance, not long ago, under the direction of the factory inspector, the projecting screws in a factory had been replaced by safer ones. A young worker passed under the shaft, combing her hair as she went. In a flash, a few strands were drawn around the shaft, her hair was entangled, and her scalp was torn from her head.

Overcrowding. — Textile machinery, if properly guarded and not crowded, has little danger for the worker. The worst danger, leading to accidents, is from overcrowding. Very often not enough space is allowed between machines,

and the aisles are too narrow. The aisles may be made safe by a proper guarding of the ends of the machines, but more space should be allowed between machines. In the case of spinning frames, a woman operator, leaning over to reach the lower rail of spindles, is liable to have her hair caught in the upper rail of spindles on the frame in front of her, or to have her skirts caught in the lower rail of spindles belonging to the worker behind her.

Oiling and cleaning. — Perhaps one of the greatest causes of danger in any factory or shop where power is used to run the machines is the oiling and cleaning of the working parts while they are in motion.

The oiling, cleaning, and repairing of machinery should never be attempted while it is in motion. Do not attempt to oil shafting or shift belts while they are in motion, unless you have been provided with a special long-stemmed oiler, or the belts are furnished with patent shifters. Do not wear torn, loose clothing while working on shafting, and be sure of your footing. The worker cannot afford to take chances.

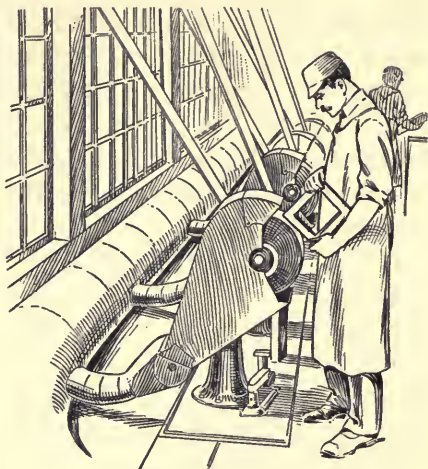


A long-stemmed
oiler

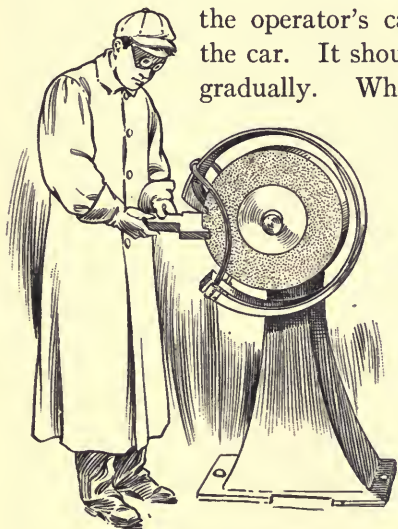
Bursting wheels. — If a grinding or polishing wheel running at a high rate of speed should burst, the flying fragments are likely to cause the death of any one they happen to strike. Safety hoods and collars over the grinding wheels will protect the workers from this danger. The illustration at the bottom of the next page shows a wheel so protected

that it would probably cause no injuries if it burst; the safety collar would prevent the pieces from flying about.

Elevators. — A great many young men become elevator operators. The position is a responsible one, as the lives and safety of many people are daily trusted to



Dust exhausts on grinding wheel



Protected grinding wheel

the operator's care. Never try to hurry the car. It should be started and stopped gradually. When not enough time is allowed to gain the required speed, a severe strain is put on the machinery; also, when the brake is applied too suddenly, there is the risk of destroying it and causing a serious accident. Always stop the car at the floor level, as many accidents occur in badly lighted halls and landings where the passengers

cannot see the sill and trip over it. Do not run the elevator when the automatic stop device is broken or out of order. Pay strict attention to your work and keep your presence of mind under all circumstances. Always keep your hand on the controlling device and be in a position to stop the car immediately. Do not allow overcrowding in the car,

as it puts too great a strain on the machinery. Always see that the doors are closed and locked before starting the car, and you will do away with a great number of accidents.

Falling tools. — If you are obliged to work above or below other workers, let them know you are there. Do not drop articles or tools from the top of machines or from scaffoldings.

They may injure some

one walking beneath. Do not pile up material until it is unsafe and may topple over on some one who comes near it. Toe guards should be put on all platforms, to prevent the falling of tools and materials on workmen below.

Cleaning windows. — Do not work at cleaning windows or in any high place without securing yourself with a safety belt.



Safety belt for window cleaners

Electricity. — If you are an electrical worker, take no risks with “dead” apparatus, but treat it as if it were really charged with current. In working about switchboards, transformers, and other dangerous apparatus, it is a good plan to use only one hand and to keep your sleeves down. Your tools should be perfect and should have insulated handles. Use rubber gloves that will act as a non-conductor when working on cables or around dangerous apparatus. When repairs are being made, switches should be locked and tagged, and the current should not be turned on again until the one making the repairs has reported to the proper authority. Every electrical worker should be provided with a rubber mat or shield upon which to stand when working on high tension wires. Do not work on poles or other high places without a safety belt.

Disobedience and ignorance. — Accidents are often due to the carelessness and recklessness of the workers themselves; many of them are the result of the resistance to discipline which is said to be a characteristic of the American workman. Many accidents are caused by ignorance. For accidents brought about by disobedience and recklessness, the guilty should suffer.

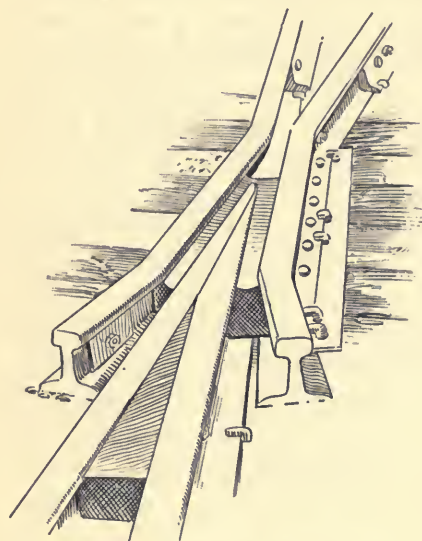
Read and make yourself familiar with the rules and regulations for safety and use of machines and materials given into your care. If you are in doubt about any of the rules, ask some one in authority to explain them to you. You may be sure these rules are not arbitrary, but have resulted from years of experience, and, in many cases, have been made to comply with state laws. If you disobey such rules, do not be surprised to find yourself out of a job.

Under no circumstances remove the safeguards from

dangerous machines. Use the safety devices that are given you, as well as the respirators, shields, spectacles, protective garments, and all measures designed to guard you from injury. Watch your tools, machinery, and appliances, and if they are broken or defective, report the matter

at once and secure new tools or have the old ones repaired.

Pay strict attention to the work in hand. Don't talk or "cut up" with other workers while running a dangerous machine, or play with any part of a machine in motion. Do not try to run machines other than your own without permission from the foreman. Do not wander about the shop, or indulge in running, scuffling,



A device for protecting railway frogs

wrestling, or the playing of practical jokes during working hours.

On entering a place of employment, acquaint yourself at once with the means of escape in case of fire or any great danger. Try the exits and fire escapes for yourself, to see if they are of any use and if you can get out quickly. If fire drills are not the custom of your shop, perhaps you can interest other employees and your foreman in the matter,

and so induce the management to organize fire brigades and to introduce regular fire drills and other measures for the safety of the entire plant.

Disorder. — Keep your place in the workshop neat and tidy. Do not go away at night, leaving your machine or bench dirty and disorderly with greasy waste, lunch papers, scraps of food, and other refuse, or inflammable materials. Such carelessness as this is the cause of many serious fires that break out in workshops and factories at night. Do not allow boards with nails sticking up in them, or sharp, broken scraps of glass and metal, to lie about on the floor, as they may cause injury to some one.

Extreme care always necessary. — The “new hand” soon becomes acquainted with his machine and tools; practice will give him skill, speed, and a certain freedom from the dangers due to ignorance and inexperience; but it is well for him to remember that there are always dangers connected with one’s occupation, no matter what it may be, and that nothing should ever be taken for granted. By paying strict attention to his duties, by exercising care and caution, even the youngest worker may do his share in promoting safety and reducing the number of industrial accidents.

AVOID ACCIDENTS

1. Never allow yourself to take risks with moving street cars.
2. Never pass a banana peel without kicking it into the gutter.
3. “Stop, look, and listen” before crossing any street.
4. Familiarize yourself thoroughly with your machine and your shop.

5. Do not take risks; it is more clever to be careful than to be risky.
6. Are there safety appliances on your machines? Is there any unguarded danger in the shop? If so, tell your employer.
7. Is there a Committee of Safety in your shop?
8. Play safe with a machine every time; it is worth more than speed. One accident will counterbalance a year of speed.
9. Obey shop orders.
10. Do not "cut up" in the shop.
11. Take care of your machine as you would your own possession, and clean it thoroughly, when it's not going.
12. Get the habit of care.

CHAPTER XIV

OCCUPATIONAL DANGERS: POISONS AND FUMES

Poisonous workshop conditions. — Any indoor occupation may be injurious to health, especially if the working conditions are bad. If the shop is overcrowded and kept too warm, if the air is impure, if the hours are too long, or the work causes a great amount of fatigue, the worker's health will suffer. Bad air is a poison as has already been shown. It is the cause of headache, faintness, loss of appetite, and a lowered vitality that renders the worker more liable to disease than a person with a greater amount of oxygen in his system, and, consequently, greater resisting power.

Poisons. — Besides the general condition of many work places which might be called poisonous, there are certain occupations in which the worker is obliged to handle materials or to breathe in dusts, fumes, gases, and vapors, which are in themselves poisons.

Among the best-known and most dangerous of these poisons are lead, arsenic, phosphorus, mercury, zinc, and copper, aniline dyes, acids, ammonia, naphtha and benzine, turpentine, varnish removers, carbon monoxide (better known as coal gas), sulphurous and other gases, to which may be added the dangers from handling the hides and hair of animals, and from excessive steam or heat.

Lead. — In addition to white and red lead works, china and earthenware potteries, many processes in the metal trades, glass works, some branches of the electrical indus-

try, type foundries, typesetting and printing, varnishing, and many other occupations may bring the worker in contact with some form of lead.

Lead poisoning usually begins with a loss of appetite and weight, nausea, constipation, low vitality, sallow skin, bad breath, a blue line along the gums, and a sweet taste in the



Various forms of lead

mouth. The symptoms of chronic lead poisoning are painful colic, pain in the legs, paralysis, wrist drop, and a general wrecking of the nervous system.

One of the results of long exposure to lead is a hardening of the arteries, which brings all the feebleness and appearance of old age, cutting down a man in the prime of life. Very often the sufferer becomes unable to feed or dress himself.

It is a mistaken idea that we have few cases of lead poisoning in this country. As we do not have the system of recording such cases as is done in Germany and England, where the laws in this respect are very strict, we do not know just how many cases really occur, but a comparison of a few German, English, and American lead factories brings out some startling facts.

In a German factory employing 150 men, two cases of lead poisoning were discovered in 1910. In an American factory employing 142 men, twenty-five cases were sent to the doctor in the same year.

In an English white and red lead factory employing 90 men, there was not a single case of lead poisoning in five successive years, while in an American factory of the same kind, employing 85 men, the doctors' records for six months showed 35 men suffering from some form of the poisoning.

On the other hand, in an American white lead factory, where the "wet process" does away with dust, there is no record of lead poisoning.

These figures refer only to red and white lead works, but other trades involving the handling of lead would doubtless show a high rate of poisoning in this country.

Lead in paints. — Lead poisoning in the painter's trade is probably well known to many people. The Commission on Occupational Diseases, appointed by the State of Illinois, found that 12 men were sent to hospitals in Chicago, in 1910, who had been poisoned by sandpapering the white walls of the lavatories of Pullman cars. In sanding the walls and ceilings they had breathed in great quantities of poisonous lead dust. In Germany, instead of the dry sandpapering, they have a wet process.

The making of paints and varnishes, the manufacturing of the lead seals used for freight cars, the laying of electric cables and charging of storage batteries, the making of tin foil for wrappers and for bottle caps, the coloring, enameling, and lacquering of various wares, in all of which lead is used, are more or less dangerous to those employed in these trades.

Lead in other manufactures. — In the manufacture of china and earthenware the lead is in the glaze that is put on the vessels. In England, where the public is better informed with regard to the dangers in lead glazing, pottery

is made without lead, or with a very low per cent of carbonate of lead in the glaze, and many English people insist on buying this kind of pottery.

Workers in wire and wire cloth factories run the risk of being poisoned by the fumes that rise from the kettles of molten lead, through which the wire is passed in the process of tempering it. In one factory of this kind, several bad cases of poisoning were found, because proper ventilation and hoods over the kettles for carrying off the fumes had not been provided.

In the polishing of cut glass and crystal, putty powder is used which contains 70 per cent of lead oxide. The putty powder mixed with water falls on the polishing wheels, which revolve at a high rate of speed. In consequence, a considerable amount of spray is thrown off, which falls on the workers' hands and clothing and on the floor. When this spray dries and rises as fine dust into the air, the work people who inhale it may become poisoned.

The danger to the worker in any trade in which lead is used is, therefore, from the inhalation of lead dust and fumes. Sometimes, through ignorance, the worker comes into even more dangerous contact with lead than the work requires. One of the members of the Illinois Steel Commission tells the story of a newly arrived Roumanian who was employed in a storage battery works and was severely poisoned at the end of 13 days. It was found that he had no idea the red lead paste he used was poisonous, and it was his custom to wet his fingers in his mouth as he worked.

Fighting lead poisoning. — The best lines upon which to work with a view to fighting the evils of lead poisoning are: —

On the part of the employer

- To prevent dust as far as possible, by using a "wet process."
- To provide a good system of ventilation for carrying off the dust and fumes from the workroom and letting in fresh air.
- To keep a good temperature in the workroom.
- To furnish respirators for the workers exposed to fumes and dust.
- To provide, or to require, a special suit of clothing, to be worn during the work, laid aside at the close of the day, and frequently washed.
- To set aside places, properly fitted up, as wash rooms, where the workers may cleanse themselves and change their clothing.
- To provide suitable lunch places, where the employees may sit, away from the dangerous conditions of their work.
- To employ a physician, whose duty is to examine regularly the workers exposed to poisonous conditions, as is now required by the new law of the State of Illinois.

On the part of the employee

- To coöperate in the use of respirators and other safeguards to health.
- To observe scrupulous cleanliness.
- To wash thoroughly the hands, face, and nostrils on quitting work, and in addition, before eating and drinking, to rinse the mouth and throat.
- To bathe in hot water at least three times a week, using plenty of soap and scrubbing the flesh with a brush.

To use sulphuric acid lemonade (very weak).

To avoid touching the mouth with the fingers during the working hours, or before the hands have been washed.

To keep the bowels open.

To refrain from smoking during working hours.

Arsenic. — Arsenic is used in making green pigments, one of which is well known to us as “Paris green,” which enter into the manufacture of wall papers, boxes, cards, cretonne, and artificial flowers. It is also used in smelting works, especially in copper smelting; sometimes brasswork is



These articles all contain arsenic

dipped in an arsenic-copper solution to produce certain desired effects. White arsenic is used for the preservation of furs, in taxidermy, and for similar purposes.

Arsenic is a dangerous poison, either in its dry, dusty form, or in fumes. The dust causes disorders of the stomach, sore mouth, great thirst, skin eruptions, ulcers, and finally a general breakdown of the system. The delicate membranes of the nose frequently become damaged as a result of inhaling arsenic dust.

When arsenic fumes are inhaled, they cause headache, nausea, vomiting, jaundice, a general condition of discomfort, and weakness. If the fumes are inhaled in great quantities, they may result fatally, death appearing to be due to heart failure.

Many cases of arsenical poisoning result from the wrapping and packing of Paris green, which is usually done by women. Most of the workers seem to suffer, in some degree, from skin diseases, sore throat, and stomach disorders.

So much arsenic is used in dark green wall papers that it frequently affects the health of people who live in rooms so papered. In the case of a lady who became very anæmic and suffered from stomach disorders, her physician found that the wall paper in her bedroom was the cause of her ill health and ordered it removed at once.

To prevent poisoning from arsenic dust, wet processes should be used. Dusting green pigments upon artificial flowers from dredging boxes should not be permitted. A great many of these arsenic pigments could be done away with entirely and harmless coal-tar colors substituted for them.

Workers who are exposed to arsenic dust and fumes should wear respirators, protect their hands with gloves, and pay careful attention to personal cleanliness.

Phosphorus. — In manufacturing matches, white and red phosphorus can be used. White phosphorus is a danger-



A respirator for protection against dangerous fumes

ous poison and its use is forbidden by law in Germany, Great Britain, France, Italy, and other European countries. The red phosphorus is not poisonous and should be substituted for the white, which is still used in this country in the manufacture of matches. A bill has been introduced in Congress prohibiting the use of white phosphorus in matches.

The fumes given off by white phosphorus cause catarrh, indigestion, faulty nutrition, and weakness, leading, finally, to the painful and loathsome disease known as "phossy jaw," in which inflammation of the upper or lower jaw, toothache, and decaying teeth are followed by abscesses and a gradual eating away of the bones of the jaw.

Thorough ventilation, the use of respirators, and personal cleanliness in changing the clothing and washing the hands and mouth before eating and drinking are good preventive measures, but the use of white phosphorus should no longer be tolerated.

Mercury. — The poisonous effects of the vapor of mercury are best known to us through the nervous disease called the "shakes" which often affects hat makers. This results from exposure to dust in the fur which has been treated with cyanide of mercury, and because in the finishing of felt hats, the fine, mercurial dust gets into the air and is inhaled by the workers. If a good ventilating system is used, this danger can be eliminated.

In brass foundries, where mercury is added to the alloy, the men who are obliged to stir the metal and inhale the heavy fumes that rise from it suffer from diarrhea, sweet taste in the mouth, sore gums, and loosened teeth. In this kind of work, the wearing of respirators would do away with the harmful effects of mercury.

In card-clothing factories, where the cards are tempered with mercury, a considerable amount of that metal may remain in the teeth of the machine. In finishing the cards, a tool is passed between the rows of teeth, causing a fine metallic dust, which may be inhaled by the worker. In this case, where an ordinary exhaust system for drawing off dust may not be successful, it is wise for the operator to protect his clothing with overalls, to wear a respirator, and to pay strict attention to personal cleanliness.

In the manufacture of thermometers, barometers, mirrors, dry electric batteries, in chemical works, lithographing, gilding, and in the making of ammunition for firearms, the workers must come in contact with mercury. In the making of ammunition, for instance, there is grave danger from the use of mercury in the form of fulminate. Even under the best conditions, the workers are taken only after physical examination as to fitness. The fine particles in the air are a serious menace to the health of the average worker. In one establishment, about six years ago, a very efficient ventilating system was installed, by which the air is washed, tempered, and distributed by pipes so as to reach every part of the workroom. To show how the ventilating system improved the working conditions, the foreman of this workroom, who did not handle any of the material, was formerly obliged to give up work for months at a time, as a result of the mercury in the air. Now he is able to do his work without any of the distressing symptoms due to the influence of mercury.

Thorough ventilation should be the rule for those who are obliged to work with mercury, and an eight-hour day would tend to reduce the risk.

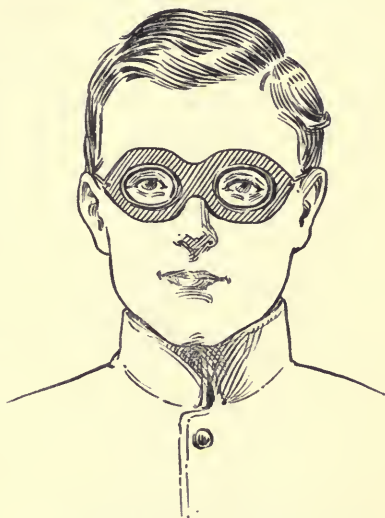
Brass and bronze. — Workers in brass foundries are exposed to the dust or fumes which result in what is known as “brass founders’ ague.” Seventy-five per cent of the men new to the work are said to be stricken with this disease, which, however, does not always have the symptoms of ague. The poisoned men suffer from pains in the back, chills, fever, headache, general weakness, and soreness in the chest. Thorough ventilation and proper washing conveniences should be provided by employers, but, as yet, these preventive measures in brass foundries have not been given the attention they deserve.

Workers in bronze are subject to headache, loss of appetite, nausea, and disturbances of the throat and chest. In many bronzing rooms, in spite of ventilating systems, the air is filled with bronze dust, and the workers are frequently covered from head to foot, as if encased in armor. In such places, special clothing should be worn, removed at night, and frequently washed. The hands, face, and mouth should be washed thoroughly before eating and drinking.

Dyes. — Dyeing, bleaching, and cleaning are all occupations more or less dangerous to those engaged in them, on account of the fumes and vapors rising from the dyestuffs and chemicals used in the various processes.

The symptoms of aniline poisoning, in a mild form, are loss of appetite, headache, dizziness, and weakness, and the sufferer should promptly receive fresh-air treatment. The effects of a more serious form of aniline poisoning are weakness, nausea and vomiting, a disordered nervous system, palpitation of the heart, skin eruptions, and stupor which sometimes results in death.

Acids. — The manufacture and the industrial use of various acids, such as hydrochloric, sulphuric, nitric, and other corrosive acids, have an injurious effect upon the eyes and respiratory organs of workers who handle them. Persons with bronchial troubles are frequently obliged to give up work of this kind. Protection should be given by a good system of ventilation to carry off the acid fumes, or the work should be inclosed so that no fumes may escape. Large spectacles should be worn to protect the eyes from drops of caustic liquids.



Goggles used as a protection against acids

Ammonia. — The fumes of ammonia frequently overpower the workmen. Ample ventilation is necessary in ammonia works, and the men should be provided with respirators and helmets if exposed to any unusual danger from the fumes.

Naphtha. — Naphtha, which is used in cleansing and also in the rubber industry and the manufacture of patent leather, sometimes causes a condition very much like intoxication. New workers are especially susceptible and suffer from headache, dizziness, nausea, and hysteria. Acute naphtha poisoning sometimes results fatally.

Petroleum. — Petroleum and benzine vapors cause headache, dizziness, and loss of consciousness. Workers who

handle petroleum, creosote, coal tar, turpentine, wood alcohol, quinine, and chrome pigments used in tanneries are subject to diseases of the skin on the face and hands and inflammation of the membranes of the nose. Such workers should wear gloves and anoint the nose, face, and hands with clean oil or grease.

Gas. — Men who are employed in gas works, blast furnaces, smelters, or about coke ovens, are frequently poisoned by coal gas. They suffer from headache, dizziness, nausea, drowsiness, and loss of consciousness. If not rescued and revived in time, they may suffocate and die.

Skins and hides. — Anthrax is a parasitical disease that is contracted by workers who are obliged to handle infected wool, hair, hides, and skins. While anthrax is not very common among American domestic animals, the danger of infection is always present. When hides and hair imported from the Far East are handled, the danger is serious. Special methods of ventilation and dust removal should be provided for the fine particles of hair and wool. In spite of ventilating systems, however, a certain amount of dust will escape into the air, against which the workers can best protect themselves by the use of respirators.

In some of the European countries, the raw material is disinfected before it is handled and used for manufacturing purposes; special hoods and ducts are installed to carry away the dust from the individual worker; the work places are disinfected and prompt treatment is given to all cuts and slight injuries, to prevent infection.

Intense heat. — Stokers, cooks, bakers, firemen, blacksmiths, men who handle molten metal, and workers in glass furnaces all suffer from the effects of intense heat. They

are especially susceptible to rheumatism, catarrh, pneumonia, digestive troubles, and heart disease, and seldom live as long as the average worker.

Workers in laundries complain of the oppressive atmosphere resulting from the steam and the vapors that rise from the chemicals used in bleaching and disinfecting clothing. Starchers sometimes suffer from nausea as a result of the starching process, and the workers at the mangles and ironing machines complain of the intense heat. All of these conditions could be alleviated if proper attention were paid to ventilation.

Preventives. — These industrial poisonings and discomforts are largely preventable. Dusts and fumes can be drawn off by effective devices, and, in most cases, the workers can be protected against those that remain by the wearing of respirators. Wet processes can be substituted for dry, dusty ones; in some industries, harmless materials may be used instead of the poisonous ones. Personal cleanliness on the part of the workers themselves and coöperation with the management in the use of respirators, shields, and hoods over machines



Injurious vapors being drawn off through a ventilating hood

and pots of dangerous substances will effect a greater degree of safety and health. It is also the duty of the worker, if he is to do his share in lessening the burden and horrors of industrial disease, to respect any sanitary rules and regulations that have been made for his protection.

SUGGESTIONS FOR THE WORKER

1. Find out if you handle lead, arsenic, phosphorus, or mercury in any form, and learn to avoid poisoning. No one is too healthy or strong to make reasonable care necessary.
2. Familiarize yourself with the precautions which should be taken by the employer to safeguard your health. If these are found wanting, tell him about it. If they are present, avail yourself of their benefit and assist in making them effective.
3. Follow carefully all rules laid down for your protection.
4. Use respirators and other protections when you know you should do so, even if they are uncomfortable.
5. Regular hygienic living is the most important protection for the health of the worker.

CHAPTER XV

FIRE

Benefits of fire. — Not only has fire served man in the cooking of his food and the warming of his dwelling against the inclemencies of the weather, but it has also enabled him to make glass for his windows, dishes, and vessels of utility and beauty; it has made possible the exploits and discoveries of chemistry, and, indirectly, through the telescope, microscope, and spectroscope, has brought within the range of human knowledge the marvels of the heavens and of the varied forms of life hidden from the unaided eye; it has helped to fashion the tools of man, from the spade and pick of the laborer in the streets, to the delicate instruments of the surgeon and the scientific investigator; it has given him the means of transportation, "Twentieth Century Limiteds" and "ocean greyhounds," that have broken through the barriers of time and distance and made isolated communities and nations known to each other.

So one might enumerate indefinitely the benefits of civilization directly or indirectly traceable to the agency of fire.

Loss from fire. — Now let us look at the other side of the picture. In spite of all its blessings, fire is the most destructive, the most terrible, the most baffling of the enemies of mankind.

The National Board of Fire Underwriters presents an interesting comparative study of fire loss in this country and abroad during the year 1910.

The United States Census population for 1910, of the 297 cities reporting loss, is 29,996,723, with a total loss of \$71,559,057, a per capita loss, as stated, of \$2.39, as opposed to a per capita loss of 19 cents in Germany, for the same year.

COUNTRY	CITIES REPORTING LOSS	POPULATION	PER CAPITA LOSS
United States	297	29,996,723	\$2.39
France	8	4,392,529	.92
England	11	2,335,847	.44
Germany	13	5,616,822	.19

\$214,003,300 represents the total property loss from fire for the entire United States, for the year 1910.

In New York alone, with its population of over four and a half millions, there occurred, in the year of 1910, more than 14,000 fires, with a total loss, insured and uninsured, of \$8,581,831.

In Ex-Chief Croker's own words: "The Fire Department of Greater New York is greater than the combined departments of the next five largest cities, and in spite of this the fire losses in life and property and the dangers of frightful holocausts in New York are steadily increasing. The battle against flames has been a losing fight, all things considered."

Between 1900 and 1909, our national population increased 73 per cent, but our fire loss increased 134 per cent. And the number of fires continues to increase. As a nation, we burn up each year one half the value of the buildings we take the pains that year to erect.

Human loss. — Reliable statistics of the number of lives lost by fire in this country are wanting, as this phase of the question has never been made the subject of governmental

or state inquiry ; but we do know that, since 1903, five fires alone, that at the Collingwood schoolhouse, the Iroquois Theater in Chicago, the moving picture entertainment in Boyertown, and, in New York City, the burning of the steamer *General Slocum*, and the latest tragedy, the Asch Building fire, are responsible for the deaths of 2100 innocent persons, to say nothing of the shock and injury to the thousands who barely escaped with their lives.

The fact that the European rate of loss is far below our own clearly indicates that a sense of responsibility, intelligent supervision, better fire laws, and a more strict enforcement of them have much to do with the prevention of fires. Under the forms of government peculiar to the European countries the individual is held accountable, not only for fires occurring on his own property, but also for any damage or loss to his neighbors through a fire that results from a violation of responsibility. Wise building laws have been framed and enforced regulating the hazards of occupancy with great strictness, thus lessening the possibilities of dangerous conflagrations.

Causes of fires. — Ex-Chief Croker says : “ At least 50 per cent of our great loss in property and human life is preventable, and is directly due to inexcusable carelessness,” and gives in his opinion the chief causes for fires occurring in a city like New York, in the following order : —

1. Carelessness in factories, which, in most cases, means dirt and rubbish and oily waste.
2. Carelessness in the use of matches.
3. Bad electrical wiring.
4. Careless housekeeping.
5. Dark and dirty hallways. People, at night, light

matches to find their way about, throw the matches into corners filled with rubbish, and a few hours later a call is sent in for the firemen.

6. Dark basements. Tenants go downstairs after coal or wood, with a candle or with matches. A startling number of bad fires begin in this way.
7. Oil stoves.
8. Old-fashioned oil lamps.
9. Cigar and cigarette stubs.

Very great fires result from small beginnings. One recent tragedy resulted from the carelessness of a smoker. The factory and the people working in it were *not* fireproof, and 143 girls were killed by a blaze that would hardly have been mentioned in the papers, but for the loss of life. The building was not deathproof, and "the best fire department in the world" was powerless to prevent the holocaust.

It is plain to be seen, therefore, that, in addition to the fireproof construction of the building, it is imperative that other means be considered to make it deathproof.

Preventive measures. — Floor areas should be as small as the demands of the business will permit. Large floor areas increase the dangers of fire, on account of the wide sweep they give the flames.

The floors should have as few openings as possible, and the walls, partitions, floors, and roof should be constructed of substantial, fire-resisting materials. Metallic doors and trim should be employed.

The United States Government, realizing the importance of protection against fire, in its newest battleships, the *Utah* and the *Florida*, specified metallic doors and trim.

Windows and doors should be protected by modern pro-

protective coverings to prevent the spread of fire from one room to another and from one building to another. Partitions of metal, fire doors and shutters, and wire glass windows now cost very little and prevent the spreading of flames.

Elevators and stairways should be separated and inclosed in brick and fire-resisting shafts with fireproof doors.

Fire escapes should be constructed with fireproof stairways, inclosed in brick or fire-resisting shafts, with outside balconies having doors swinging outward from the building and inward from the balcony to the stairway escape.

It is now generally conceded that the old-fashioned skeleton iron fire escape is utterly inadequate for use on a ten-, twenty-, or thirty-story structure, not only because such escapes are usually located in front of windows out of which smoke and fire may be pouring, but also because of the difficulty for great numbers of people in getting down the narrow stairways that are little better than ladders. It has been estimated that, in the case of one recent fire, the employees on the upper floors could not have reached the street by such an escape in less than three hours, and the fire allowed them about three minutes !



Fire door of metal

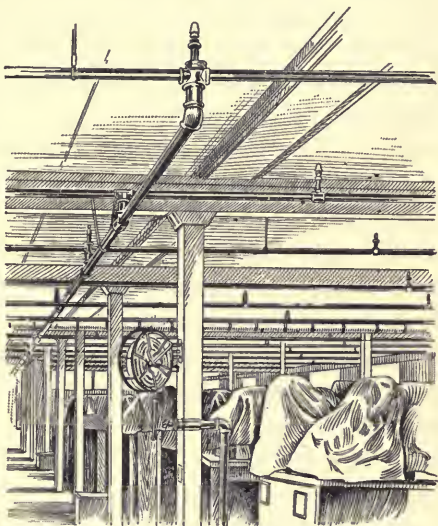
State Fire Marshal. — If the office of State Fire Marshal were created by every commonwealth and the fire marshal and his deputies given power to enforce good fire prevention laws, to investigate and, if necessary, prosecute cases of arson and criminal carelessness in the starting or spreading of fires, ascertain their causes, and by the distribution of literature educate the citizen to the real need of care and forethought in the protection of life and property, a great conserving of our national resources would instantly follow.

In this connection, it is interesting to study the work of the State Fire Marshal's Department of Ohio, which has carried its campaign of education into the public schools of the state. Under the law, this department was instructed to prepare elementary textbooks on the chemistry of fire, the causes of fires in our homes, how to guard against them and how to hold the fire in check until the arrival of the firemen. The law further directs and makes it a duty of the teachers in the schools throughout the state to devote at least thirty minutes in each month, during the school year, to instruction on this subject. The publication and distribution of these books is made under the supervision of the State School Commissioner. The opinion in Ohio, at the present time, is that the plan has more than met their expectations.

Fire-fighting appliances. — Complete equipment for discovering and fighting incipient fires will minimize fire losses and protect life. It is really an abuse of fireproof construction not to provide such apparatus. Every factory, warehouse, and loft building should be equipped with such appliances, which should be frequently tested with a view to their efficiency. These cover a wide range,

from the pails and casks filled with water or sand, up to the various styles of chemical extinguishers, standpipes and hose, fire pumps, automatic alarms, and automatic sprinkler systems.

The automatic sprinkler is a device which is always prepared to extinguish a fire at the point and time of its breaking out, as the heat from the flames sets it in motion. With proper water supply under necessary pressure behind it, this sprinkler, in almost any locality where the delivery of its spray is unobstructed, has demonstrated itself to be the most efficient fire-fighting device yet invented; it is always in the right place at the right time, ready for any emergency, and performs its work without dependence on the human element.



A shop equipped with an automatic sprinkler

Fire brigades and drills. — In order, however, to secure from all these devices the most satisfactory measure of efficiency in times of need, it is necessary that employers and workpeople should be familiar with their use. This can be accomplished only through the organization of private fire brigades and fire drills, by means of which the weaker

members of the force may be immediately conducted to safety, while a selected few of the most strong and reliable employees, who have been thoroughly drilled in the use of the appliances, form a fire brigade for the protection of the factory until the arrival of the regular fire department.

In any large building where a great number of people are gathered together, these drills can be carried out just as effectively as they are in our public schools.

Personal efforts. — But we need not be employers of labor or workers in a factory ourselves to assist in the campaign for fire prevention and fire protection. Each of us can start right now to add his individual efforts in putting a stop to the numerous fires, and in saving a part of the millions of dollars which go up in flames and smoke every year.

If we are householders or housekeepers, we can at once resolve to keep our premises always cleaned up. We can see that greasy rags, filth, and rubbish are not allowed to collect in closets, cellars, and dark corners. Oily rags may be kept in metal cans with covers. Gasoline, kerosene, and other explosive and volatile liquids we may keep in safety cans now manufactured for that purpose.

We should never use gasoline in a closed room, or in a room where there is an open flame or fire. A lighted cigar carried into a room in which gasoline is being used will explode the air in it.

We can exercise greater care in the trimming of our Christmas trees, selecting decorations that will not burn easily, and doing away with the customary tissue paper, cotton batting, and celluloid trimmings. We can see to it that a bucket of water stands near the tree, if it is lighted with candles.

We can also resolve to be more careful in the use of gas for cooking and lighting purposes. Never turn on the gas unless you have a match ready in your hand to light it. Many explosions have occurred when the gas was turned on too long before the match was used.

Smokers should be less careless in throwing away their matches and cigar stubs. Many a match tossed away while still lighted has been responsible for a serious fire.

We should never use dangerous matches, the heads of which so frequently snap and fly off, setting fire to waste paper, lace curtains, and clothing, particularly the clothing of women.

We cannot be too careful with matches. We should never leave them lying about loose. It is much better to use only "safety" matches, which will ignite only when scratched on the box in which they are sold, but if these cannot be procured as cheaply as the ordinary match, we should keep the latter in a safe place and exercise care in its use.

We can make our Fourth of July a safe and sane holiday, instead of encouraging the excitement, useless noises, fires, and accidents now due to the sale of dangerous fireworks.

Below are given ten rules suggested by Ex-Chief Croker for guidance in case of fire.

TEN RULES FOR GUIDANCE IN CASE OF FIRE

1. *Cleanliness in the home is an important preventive of fire.* Accumulations of waste often cause fires by spontaneous combustion, while dust, rubbish, and similar material help to spread the flames.

2. *Get well acquainted with the surroundings.* In strange houses or hotels, the location of fire escapes should be noted before going to bed.

Employees of large factories and tenants of large buildings should make it an imperative duty to know the location of all fire exits.

3. *At the first sign of fire do not run away from it.* When first discovered, many fires could be put out by a bucket of water, or a rug thrown over the blaze.

4. *Fire drills should become a fixed law.* They should be required in all places where a considerable number of people are employed, as they are required in the schools and on passenger and naval vessels.

5. *Everybody should learn to use fire appliances.* This would result in the prompt extinguishing of many fires and a great decrease of personal and property injury.

6. *No matter how close the fire, make every effort to keep calm.* Do not lose control of yourself and thus run additional risk.

7. *At any cost, calm the fears of little children.* They are usually more excited by the fear shown by others than by the danger itself.

8. *Do not be too hasty to jump from high places.* Many terrible accidents and fatalities have resulted from people "losing their heads" and jumping when a few moments' delay and a little coolness might have saved them.

9. *Do not resist a fireman attempting to rescue you.* Many fatalities have resulted from men, and particularly women, refusing to be taken down the ladders because scantily clad.

10. *In case of much smoke, try to get a wet cloth about the mouth.* A wet towel or sponge over the mouth and nostrils will enable one to go through a smoke-filled passage. Remember there is nearly always air free from smoke close to the floor.

CHAPTER XVI

FIRST AID TO THE INJURED

The importance of attending to slight wounds. — No injury is too slight to receive immediate attention. In addition to lessening the soreness or pain that exists, a more serious disability may be prevented.

The average man is careless about slight wounds and does not like to bring them to the attention of his foreman or superintendent; if these do not interfere with the work in hand, no attention is paid to them. This indifference on the part of the workman, however, may lead to serious results.

The danger of blood poisoning is always present in the case of even the smallest wound. The worker's hands are usually dirty, and the wound is wrapped or plastered without being cleansed and disinfected; the nail upon which the worker's hand or foot has been torn may be rusty; or poisonous dyes and other materials may get into the wound from contact with the work, and the result is a serious infection.

Slight physical ills as well as minor injuries interfere with the regularity of the work. If taken in time, they yield at once to treatment and the workers suffer no loss of time and wages; on the other hand, the employer suffers no loss from an idle machine and a lessened output.

Factory hospital rooms. — The best organized shops and workrooms now keep a supply of appliances and reme-

dies on hand for emergencies and have also found it helpful to drill a few reliable employees in the principles of first-aid treatment.

One large manufacturing company decided to make a careful study of the number of men who were off from work on account of slight injuries, not serious in themselves, but which, through the lack of proper antiseptic treatment, had become infected and dangerous. Some of their most skilled and highest paid mechanics were obliged to quit work for several days on account of a cut or bruise that had become serious. The records showed that, on an average, as many as half a dozen men were away from work every day for this reason. As it was the policy of this company to pay wages for a portion of the time lost by employees through injuries, this meant a double loss to the company.

They decided that they not only could do away with the dangers of such slight injuries, but also could save the employees' wages and the loss resulting from the decreased production and holding up of important work.

So the company equipped an emergency hospital with every necessary appliance and convenience, and placed a physician and a trained nurse in charge of it. The doctor's entire time is given to the hospital work and the nurse assists him every morning in dressing and redressing wounds. In the afternoons, the nurse's time is given up to visiting the sick or injured employees at home, as well as any members of their families who may need her care.

As a result of this emergency work, the company found that in one year, out of about four thousand cuts, bruises, sprains, etc., that occurred in their plant, only about four a month became infected. The company has kept a careful

record of these cases and believes that the large number of minor injuries is not unusual in a plant like their own, which is one of the best-equipped with safety devices and measures for the prevention of accidents. They believe that any modern, well-equipped shop, employing the same number of workers, would have just as large a number of slight injuries and should give them the same care.

With regard to the treatment of such minor ailments as colds, headaches, indigestion, sore throat, and cramps, this company believes it is more profitable to the worker, as well as to themselves, to treat the condition and relieve the suffering in the factory hospital, sending the employee back to work within an hour, than it is to have him lose an entire day on account of illness. The company doctor is also in a position to prevent a great deal of illness that might otherwise prove serious, by prescribing for the employee upon the first appearance of the symptoms of any disease. The workers take the doctor into their confidence, and he is thus able to help them keep in better physical condition.

One industrialist believed that it was poor economy for him to build and maintain a hospital for his own plant, located in a large city, so he hired a ward in one of the largest city hospitals, and installed his own surgeons and nurses.

The cots or beds are inclosed with curtains, giving each patient the privacy of a separate room. As soon as a man arrives at this ward, his clothing is removed and he is fitted out with sterilized garments until he leaves the hospital. The patients are provided with games, reading, amusements, and diversions during their convalescence.

The visiting nurse. — In addition to the company doctor or surgeon, and trained nurse, whose services are always

available in the factory hospital or emergency room, many industrial establishments employing a great number of workers have come to look upon the visiting nurse as a very important factor in efficiency and of valuable assistance in promoting good will and understanding between themselves and their employees.

According to the records of one manufacturing company, their visiting nurse made, in one year, 989 personal calls at the homes of employees, on account of illness or accident to the workers or to members of their families. This company reports that it has many calls from homes of their employees on account of illness of the wife and children. Before the nurse was engaged, it was very common for some of the most valuable employees to be called away from work on this account. Now, instead of the men going home, the nurse is sent. Nine times out of ten she can be of greater assistance than the husband, father, or other relative. The nurse's work among the women employees is even more valuable, and her advice is sought at all times by those who go to her with their troubles, as well as their ailments.

The visiting nurse also proves valuable to the management and employees when she acts as a go-between and medium of good will and interest, especially when an employee has been injured and is obliged to be away from work. At such a time, an assurance from the nurse that the company will deal fairly with the injured worker has created the proper mental attitude, and the worker has no desire to bring suit for damages against the company.

A notice in a large leather factory calls attention to the fact that the company offers, free to its employees, or

members of the employees' families, the aid of the company's nurse in case of sickness or injury. Part of the notice reads: —

“In case any employee or member of any employee's family is seriously sick or disabled, and wants the services of the nurse, the company will have its trained nurse visit the patient.

THERE WILL BE NO CHARGE OF ANY KIND

Report cases of sickness or disability, where the services of the nurse are wanted, to your foreman or to the Accident Department.”

Effective emergency work. — First aid must be prompt to be effective. One plant has its own surgeon instruct classes of foremen and those having other men in charge, in the principles of first-aid treatment. They are taught just what to do in case a man is injured, and how to take care of the different kinds of injuries. The instructions are of benefit to these men, not only in the works, but in their own homes, on the street, or wherever they may be in the presence of persons needing emergency treatment.

Emergency work to be effective should be systematized. Some one should be placed in charge of the supplies, whose duty is to see that they are kept in good condition in a clean place, that the stock does not run low, and that fresh material is procured whenever necessary. A complete inspection of the emergency outfit should be made at least once a month, to be sure that everything is in its proper place, instantly available in the moment of need.

Instruction should be given to the foremen and to reliable members of the working staff, who should be carefully trained in individual and team work and given prac-

tice drills as often as possible. Some kind of signal should be used as an emergency call to attract the attention of the first-



Red Cross emergency outfit

aid corps on any floor or building of an industrial establishment, in order that the members may instantly respond.

Efficiency and quickness in emergency treatment should be encouraged by competition between different members and groups, prizes and medals being awarded for the best individual and team work.

Some large companies, especially those operating railroads and mines, have encouraged this kind of work by having field days or meets, when the picked men and teams from the different companies are given an opportunity to show their skill, and to compete for honors and prizes.

WHAT TO DO IN EMERGENCIES

Send for the doctor at once. Until he arrives do all you can to relieve the sufferer.

Fainting. The symptoms of fainting are unconsciousness, weak pulse, pale, bloodless face.

Lay the patient down at once, in such a position that his head may be lower than the rest of the body, thus allowing the blood to flow towards the brain. If the patient is in a chair, it may be gently lowered until the back and head rest upon the floor. Keep away the crowd



How to restore a fainting person

and admit plenty of fresh air. Hold a handkerchief or bit of gauze saturated with aromatic spirits of ammonia to the patient's nostrils. When he regains consciousness, give him a drink of cool water and allow him to rest for a while.

Sunstroke. The symptoms are complete unconsciousness, red face, skin hot and dry, and, sometimes, convulsions.

Remove the patient's clothing, and either place him in a bathtub of cold water or wrap him in a wet sheet, kept cold by frequent

sprinkling. Cloths wrung out in ice water and placed on the back of the head and neck, or the application of an ice bag to the head, will also help to reduce the temperature. Stimulants may be given, but not in excess.

Heat exhaustion. This is a milder form of sunstroke, in which the face is usually pale, instead of red, and the skin more or less moist and cool. Loosen the patient's clothing, let him rest in a cool, quiet place, and give him stimulants in small doses. In this case, the temperature should not be reduced.

Electric shock. In cases of electric shock, there may be instantaneous death or only temporary unconsciousness, but the treatment must be given just the same, as life may not be extinct where the per-



Performing artificial respiration

son appears to be dead. If a person is shocked by coming in contact with a live wire or through a short circuit with some kind of electrical apparatus, he must be separated from the electricity immediately. Do not attempt to pull him away, however, with your bare hands. Your hands should be covered with rubber gloves and, if possible, you should stand on a piece of rubber.

Take the patient immediately into the fresh air and perform artificial respiration as follows:—

Loosen the patient's clothing at the neck and waist. Bare his legs and arms and have some one rub and slap them vigorously. Place the patient face downwards and turn his head to one side. Kneel astride the hips, placing your hands with the thumbs nearly touching, fingers out, just below the shoulder blades and over the lower ribs. Press down and forward quickly, with your whole weight, by swinging forward till your shoulders are above your hands. Keep up this pressure for three full seconds. Release the pressure and swing back, keeping your hands in place and the arms straight, and wait for three full seconds, then repeat. The movements should be quick and vigorous. Keep them up until consciousness is restored, or an hour and a half has passed after all signs of life have ceased.

(Learn this process of artificial respiration carefully for it is of great use in treating drowning or asphyxiation by gas.)

During the process of artificial respiration, the rubbing of the patient's body should be kept up, and some one should apply spirits of ammonia to his nostrils. When he becomes conscious, give him a half-teaspoonful of aromatic spirits of ammonia in a third of a glass of water. Place hot bricks or bottles of hot water around him and let him rest. It is important to remember that persons apparently dead after some one has spent an hour in performing the motions of artificial respiration, have nevertheless been brought to life by the perseverance of the person in charge.

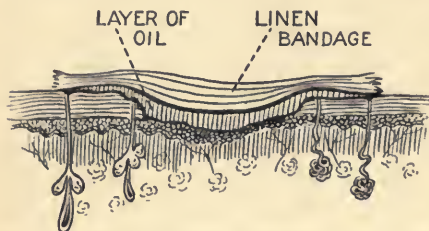
Asphyxiation by gas. The symptoms are headache, dizziness, and nausea, if only slightly affected; but, in more serious cases, these are followed by unconsciousness.

The patient should be taken immediately into the fresh air. In the lighter cases, loosen his clothing and give a dose of effervescing phosphate of soda, followed in about five minutes by a half teaspoonful of aromatic spirits of ammonia in a third of a glass of water. Walk the patient around until he recovers.

In case of complete unconsciousness, perform artificial respiration until the patient begins to breathe. Rub his legs and pass the spirits of ammonia under the nostrils as long as he is unconscious. After he regains consciousness, give him the same dose of aromatic spirits

of ammonia prescribed above, place bottles of hot water around him, and let him rest.

Burns. Burns may be caused by fire, hot water, hot metals, or chemicals. The skin may be very red, blistered, or charred. If the



Proper dressing for a burn

burns are severe or much of the surface of the body is injured, they may prove fatal.

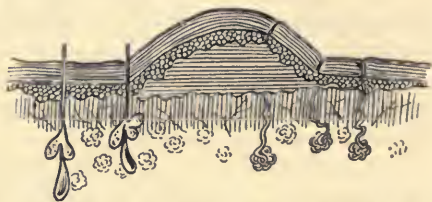
If a person's clothing is on fire, dash water over him and throw him down and wrap him in anything heavy that happens to be at hand, such as a

blanket, a piece of carpet, a table cover, or a coat.

Cut his clothing away with a pair of scissors, and if any part of it sticks fast to the flesh, do not attempt to remove it. To keep the air away from burns is the first principle of treatment. The best way to do this is to keep the injured part in water till the doctor comes. A simple burn may be treated with a paste of water and baking soda, or vaseline, sweet oil, lard, cream, or a mixture of equal parts of limewater and linseed oil, covering it with a piece of oiled silk, light cloth, or paraffine paper, and fastening the whole securely with a bandage.

Don't open blisters until 24 hours or more have elapsed.

In case of acid burns, wash off the acid immediately with large quantities of water. After this, apply water and baking soda, limewater, or soapsuds, until all signs of the acid have disappeared. The paste of baking soda and water is best in this case, because the soda is an alkali. If the mouth has been burned by acid, or acid has gotten into the stomach, drink limewater, milk, lithia, or vichy water freely.

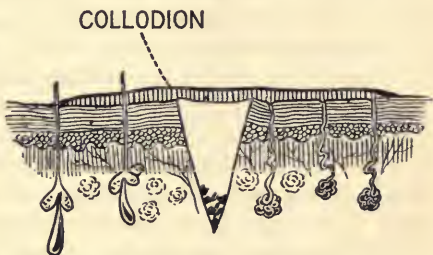


A cross-section of a blister, showing Nature's way of dressing a burn

In case of burns from alkalies, wash the burns with water and weak acids like lemon juice, vinegar, cider, etc., after which they may be treated and bandaged like other burns. If lime has splashed into the eyes and burned them, wash them with olive oil, or a very weak solution of vinegar.

Frost bites and freezing. If the ears, nose, fingers, toes, arms, or legs have been frozen through exposure to extreme cold, do not bring the person near a fire. Rub the frozen parts with cold water or snow, and after they have been thawed out, the patient may be taken into a moderately warm room and given hot drinks. Sometimes, if the patient is unconscious, artificial respiration must be performed.

Cuts and wounds. All cuts and wounds, no matter how small, should be washed and cleansed with warm water and some antiseptic solution such as a 1 to 5000 solution of bichloride of mercury. If the wounds are very dirty, they should be washed with soap and water. Bring the edges of the wound together and bind with a compress, which is a clean folded cloth, usually cheesecloth, that has been dipped in an anti-



Cross-section of the skin, showing collodion placed on a dirty cut

septic solution. If a wound is very slight, after the bleeding has been stopped and it has been cleansed, a bit of adhesive plaster is all that is necessary. Never put on collodion or "newskin" unless you are sure the wound is *absolutely* clean.

Bleeding may be of three kinds; from the arteries, veins, or capillaries. When an artery has been injured, the blood is bright red and sometimes spurts to a great distance. Such an injury is serious. While waiting for the doctor, try putting a compress on the wound, fastening it with a tight bandage. If the bleeding continues, twist a piece of elastic, a handkerchief, or a necktie tightly *above* the wound; that is, between it and the trunk, pressing the artery against the bone. When you place a lead pencil or stick between the cloth and

the limb, you make what is called a *tourniquet*, and by twisting it, you will stop the flow of blood.

If a vein has been injured, the flow of blood is steady and dark in color. When capillaries have been injured, the blood seems to ooze out from many little openings. Apply compresses directly to the wound and fasten with a tight bandage.

Nosebleed may frequently be stopped by chewing vigorously on a wad of paper. *Never give stimulants for any kind of bleeding.*

Sprains. While waiting for the doctor, in the case of a sprained wrist or ankle, place the patient's hand or foot in hot water, increasing the temperature as much as possible. If hot water is not at hand, then let cold water run on the injured joint. This treatment reduces the swelling and lessens the pain. Place cotton batting over the joint and bandage it tightly. Pour witch-hazel or some other soothing liniment over the bandage, and place the limb higher than the rest of the body by letting it rest on a cushion or chair. Do not paint the joint with iodine.

Drowning. To rescue a drowning person, always try to pull him out with an oar, a rope, a coat, or, if you jump in after him, try to get your left arm around his neck with his back to you. Hold him away and swim on your back, so that he will not struggle and clutch you, thus impeding your movements and, perhaps, causing you to drown also. If life seems extinct, hold the drowned person with head down or roll him across a barrel for a moment only in order to empty his lungs of water. Loosen his clothing, rub the arms and legs, apply stimulants, and perform artificial respiration until his breathing is regular. Keep him dry and warm, placing him between hot blankets and surrounding him with bottles of hot water.

Broken limbs and ribs. If an arm, leg, collar bone, or rib is broken, do not move the sufferer, but make him as comfortable as you can and send for a surgeon immediately. Never attempt to set the bone, but wait for the arrival of the surgeon.

Poisoning. In most cases of poisoning, the principal thing to do is to empty the stomach and bowels of the sufferer and give an antidote for the poison that has been swallowed. Poisons may be taken by mistake or with suicidal intentions, and you will find the victim suffering severe pains in the stomach and abdomen, or insensible, breathing heavily, sometimes in delirium and convulsions.

If Paris green, sugar of lead, corrosive sublimate, rat poison, sulphuric, muriatic, nitric, carbolic or oxalic acid has been taken, make the patient drink quantities of milk ; or give him the whites of a couple of eggs, or flour stirred in water. If an acid has been taken, give lime-water, baking soda, or magnesia ; if carbolic acid has been swallowed, wash out the patient's mouth with alcohol and give him whisky to drink. If the poison is an alkali, give lemon juice, or a tablespoonful of vinegar in water.

In the case of poisoning from opium, morphine, strychnine, laudanum, and other poisons that produce heavy stupor, give black coffee and endeavor to keep the patient awake. If he seems to collapse, perform artificial respiration and put hot applications against the abdomen and legs.

Ptomaine poisoning is caused by eating meat or fish that is tainted. Give the victim a dose of Epsom salts or castor oil. If he is unable to keep the dose down on account of nausea, then give him a grain of calomel every hour for four or five doses. Do not give any food until a physician advises it.

CHAPTER XVII

WHAT THE WORKER HAS A RIGHT TO EXPECT

Laws protecting the worker. — There are many laws which are designed to protect the young worker from discomfort, danger, and long hours. Every one should learn as much about these laws as possible before beginning work, so that he may protect himself and others. Employers are becoming more and more alert to regard the welfare of those they employ, but much that is important to you may escape their notice. It is the business of the worker to inform the employer of any matter of this kind which should be brought to his notice, and a committee representing the employees will no doubt be accorded a hearing.

Each state has its own laws, but they cannot all be given here. The laws of the state of New York are typical. The laws of the state in which you live may be obtained by writing to the secretary of your state at the capitol or to the commissioner of labor.

The most important of the laws affecting labor are those relating to employment certificates, and to the earliest age at which you will be allowed to work, and you should regard these long before you propose to begin.

The compulsory education laws of the state of New York are given in the Appendix, pp. 223-225.

The employment certificate. — The most important thing for you to do, if you wish to go to work before you are sixteen years old, is to get an employment certificate. You

should have been graduated from the elementary school, or at least passed the sixth-year work. If not, you must ask your principal for an examination. If you were born abroad, you should send, with a fee, to the registrar of your town or to the parish priest, for your birth certificate, and for this you must allow at least six months, for there are many delays.

An employment certificate must be signed, in the presence of the officer who issues it, by the young person in whose name it is made out. It must state the date and place of birth, the color of the hair and eyes, the height and weight, and any distinguishing facial marks of the one in whose name it is issued; it must also state that all the papers required have been examined, approved, and filed.

Every person owning or managing a factory is obliged to keep a record of the name, birthplace, age, and residence of all persons employed under the age of sixteen years. These records and the certificates that have been received from the young persons must be produced on the demand of the commissioner of labor, if there is any doubt about the ages of any of the workers.

Special provisions for women and minors. — No person under the age of sixteen years is now permitted to work, or to be employed in or in connection with any mercantile establishment, business office, telegraph office, restaurant, hotel, apartment house, theater, or other place of amusement, bowling alley, barber shop, shoe-polishing establishment, or in the distributing or delivery of articles of merchandise or messages, or in the sale of articles, more than six days or fifty-four hours in any one week, or more than nine hours in any one day, or before eight o'clock in the morning or after seven o'clock in the evening of any day.

No female employee between sixteen and twenty-one years of age is to be required or permitted to work in or in connection with any mercantile establishment more than sixty hours in any one week, or more than ten hours in any one day, unless for the purpose of making a shorter work day at some other time in the week ; or before seven o'clock



Overtime work at Christmas is a pleasure

in the morning, or after ten o'clock in the evening of any one day. This section does not apply, however, to the employment of persons sixteen years of age and upward, between the 18th day of December and the following 24th day of December, inclusive.

Not less than forty-five minutes must be allowed for the noon-day meal of employees in such establishments,

and whenever any employee is permitted to work after seven o'clock in the evening, at least twenty minutes must be allowed for lunch or supper between five and seven o'clock in the evening.

No child under the age of fourteen is allowed to work at all in connection with these establishments, while no one under

the age of sixteen years can be employed in them, without having first secured the employment certificate already described.

Under the age of sixteen years, no one is allowed to work in a factory in this state, before eight o'clock in the morning or after five o'clock in the evening of any day, or for more than eight hours in any one day, or more than six days in a week.

No boy under eighteen years of age is allowed to work in any factory more than six days or sixty hours in any one week, or for more than ten hours in any one day (except in accordance with special regulations) or between the hours of twelve at midnight and four o'clock in the morning.

No girls and women may work in a factory before six o'clock in the morning, or after nine o'clock in the evening of any one day, or more than six days or sixty hours in any one week, or for more than ten hours in any day, except in accordance with the special provisions.

Special provisions are made by the commissioner of labor for certain factories which, on account of the nature of the work, believe it to be impossible to fix the hours of labor weekly in advance and are unable to post in the work-rooms the notice, giving the number of hours per day for each day of the week, as required by law. A young woman over sixteen years of age or a young man between sixteen and eighteen years of age may work in a factory longer than ten hours a day, under certain conditions. They may work longer on five days of the week, in order to make a short day or holiday on one of the six working days of the week; or on not more than three days of any week, they may work overtime, provided that they do not work more than twelve hours in any one day, or more than sixty hours in any one week.

Dangerous trades prohibited to women and minors. —

Certain kinds of work considered dangerous are absolutely prohibited to women and children. No child under the age of sixteen years is allowed to work on circular or band saws, wood shapers, wood jointers, planers, sandpapering or wood-polishing machinery; machines used in picking wool, cotton, hair, or other upholstery materials; paper lace machines; burnishing machines in tanneries and leather factories; job presses or cylinder printing presses that are run otherwise than by the foot; wood turning and boring machines; drill presses; corner staying machines in box making; stamping machines used in sheet metal and tinware manufacturing or in washer and nut factories; machines used in making corrugating rolls; steam boilers; dough brakes; wire or iron straightening machinery; rolling mill machinery, power punches or shears; washing, grinding, or mixing machinery; calender rolls in rubber factories; or laundering machinery.

No child under the age of sixteen years is permitted to adjust or to help adjust machinery belts, to oil, wipe, or clean machinery; to work with dangerous and poisonous acids; to work in the manufacturing or packing of paints, colors, or red and white lead; in dipping, dyeing, or packing matches; in the manufacture, packing, or storing of powder, dynamite, and other explosives; in or about any distillery or brewery, or place where alcoholic liquors are made, packed, wrapped, or bottled.

No girl under the age of sixteen is allowed to work in any capacity where she is obliged to stand constantly.

No child under the age of sixteen is allowed to be in charge, to manage, or to run a freight or passenger elevator, while no one under the age of eighteen is permitted to oper-

ate an elevator, either for freight or passengers, running at a greater speed than two hundred feet a minute.

No woman under twenty-one or young man under the age of eighteen years is allowed to clean machinery while it is in motion.

No young man under eighteen years, or any woman is allowed to run any kind of polishing or buffing wheels, in connection with the manufacturing of articles from iron, steel, tin, and other base metals.

The length of the day's work. — According to the labor laws at present in force in the state of New York, the term "factory" is used to designate any mill, workshop, or other manufacturing or business establishment where one or more persons are employed at labor. The term "mercantile establishment" means any place where goods, wares, or merchandise are offered for sale.

In New York State eight hours constitute the legal working day for all employees, except those persons working as domestic servants, or employed on farms. Exceptions are also made in the case of workers in brickyards, on street, surface, and elevated railroads, in drug stores and pharmacies.

Ten hours outside of the necessary time for meals is a legal working day for brickmakers. Employees in brickyards are not obliged to work more than ten hours in any one day or to commence work before seven o'clock in the morning. However, overwork and extra time before seven o'clock are allowed with extra compensation, if the employer and employee agree upon the same.

Ten consecutive hours, with a half hour for dinner included, are legal hours for all who work on street, surface,

and elevated railroads, which are operated within the limits of cities of the first and second class. Employees of these railroads are not allowed to work more than ten consecutive hours in any one day of twenty-four hours, but in cases of accident or unavoidable delay they may work overtime for extra compensation.

Ten hours is also the legal limit for workers on steam, surface, and elevated railroads in the state, except where the mileage system is in operation. Conductors, engineers, firemen, and trainmen may work extra hours, in case of accidents and delay on account of accidents, but for each hour of work performed in addition to the legal ten hours, the worker must be paid in addition to the regular wage at least one tenth of the daily compensation. No conductor, engineer, fireman, or trainman who has been obliged to work for twenty-four consecutive hours is allowed to go on duty again or perform any kind of work until he has had at least eight hours of rest.

In the case of block-system telegraph and telephone operators, and signalmen on surface, subway, and elevated railroads, the law prohibits a working period longer than eight hours in a day of twenty-four hours, "except in cases of extraordinary emergency caused by accident, fire, flood, or danger to life or property." For each hour of extra work performed by this class of workers, it is provided that they shall receive additional compensation of at least one eighth of the daily wage.

These provisions do not apply, however, to railroads where not more than eight regular passenger trains pass each way in twenty-four hours, unless twenty freight trains pass each way in the same length of time.

A new law provides that no apprentice or employee in any pharmacy or drug store shall be permitted to work more than seventy hours a week. A clerk may work overtime in one week, but the total number of hours worked in two consecutive weeks must not be more than one hundred thirty-two hours. Every worker is entitled to one full day off in two consecutive weeks. No proprietor of any pharmacy or drug store can require a clerk to sleep in any room or apartment connected with the store that is unsanitary and unhealthful.

Unfortunately, these restrictions with regard to hours of labor do not include the prohibition of overtime, for the law distinctly states that, in the general provision made for an eight-hour day, it "does not prevent an agreement for overwork at an increased compensation."

Special provisions. — Every manufacturing, mining, quarrying, mercantile, railroad, street railway, canal, steamboat, telegraph, telephone, and express company, every company gathering and storing ice, every private water company and every person, firm, or corporation engaged as a contractor or subcontractor in any public work for the state or any city of the state must pay the wages of their employees in cash. No person, company, or corporation is allowed to pay wages in what is called "store money orders," obliging the workers to take out the equivalent of their wages in supplies bought from a store owned or controlled by the person, company, or corporation employing them. The owning or managing of what is called a "company store" is prohibited by the state of New York, if at the time there is any other store within two miles of the place where the work is being done.

Sanitary regulations. — Sanitary conditions in workplaces are regulated by laws providing for air space, lighting, cleanliness, ventilation, cuspidors, drinking water, wash rooms, toilets, time allowed for meals, seats for women employees, and dust removal.

No more employees are permitted to work in a factory room, between the hours of six o'clock in the morning and six in the evening, than will allow to each 250 cubic feet of air space; and unless the written permit of the commissioner of labor allows otherwise, 400 cubic feet must be provided for each worker employed between the hours of six o'clock in the evening and six o'clock in the morning.

Workrooms, halls, and stairs leading to workrooms must be properly lighted.

The walls and ceilings of workrooms must be limewashed, or painted; floors must be kept clean and sanitary and suitable receptacles provided for waste and refuse; buildings must be well drained and the plumbing kept in clean, sanitary condition.

In every workroom, proper and sufficient means of ventilation must be provided and maintained. In the case of excessive heat, steam, gases, vapors, and dust, or other impurities getting into the air from the work, the workrooms must be ventilated in such a manner as to render these conditions harmless to the workers.

Sanitary cuspidors must be provided and cleaned daily. This regulation, especially the number of cuspidors to be provided, lies within the discretion of the commissioner of labor. It is against the law to spit upon the walls, floors, or stairs of any building used in whole or in part for factory purposes.

A sufficient supply of clean, pure drinking water must be provided; if it is placed in receptacles in the factory, these must be kept covered and frequently cleaned.

Suitable and proper wash rooms and water-closets are required by law. Where women are employed in factories, dressing rooms must also be provided. In brass and iron foundries, provision must be made for drying the working clothes of the employees. Water-closets must be properly screened, lighted, ventilated, and kept clean and sanitary.

In factories, at least sixty minutes must be allowed for the midday meal, unless the commissioner of labor permits a shorter time. The same rule for a lunch period when working overtime applies to factories as in the case of mercantile establishments; that is, at least twenty minutes must be allowed for lunch if employees are obliged to work after six o'clock.

Every person employing women in a factory or as waitresses in a hotel or restaurant must provide suitable seats for their use; in stores and other mercantile establishments, at least one seat for every three females employed must be provided and the use of such seats must be allowed.

Grinding, polishing, and buffing wheels used in manufacturing articles of the baser metals must be furnished with proper hoods and exhaust pipes to carry away the dust and impurities that are thrown off in the work.

Other regulations. — According to the laws of the state of New York persons in charge of any building, construction, excavating, or engineering work, or of factories, must keep a correct record of all deaths, accidents, and injuries, and within 48 hours after the time of the death, accident, or injury make a report to the commissioner of labor,

stating as fully as possible the cause of death, the extent and cause of injury, the place where the injured person has been sent, and such other information as the commissioner may require.

A new law has been passed requiring every physician who is called upon to treat a patient suffering from lead, phosphorus, arsenic, or mercury poisoning, or from the effects of compressed air, or from anthrax, to report the case to the commissioner of labor.



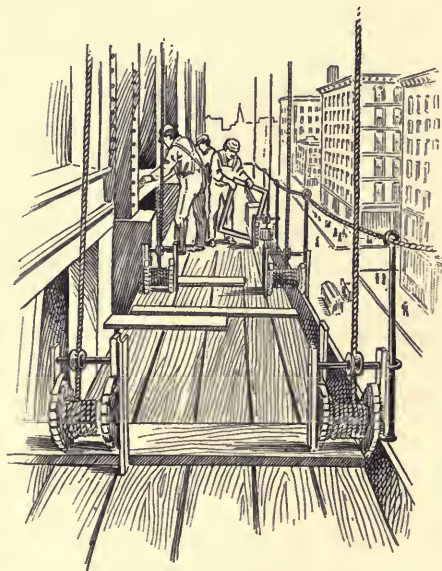
The elevator operator is responsible for the safety of many

Regulations for safety in workshops include provisions for safeguards for vats, pans, belting, and other dangerous machinery. Machinery must be provided with loose pulleys and mechanical belt-shifters wherever possible. If machinery is in a dangerous condition, or not properly guarded, the commissioner of labor has the power to prohibit its use. Guards must not be removed from dangerous machines except to make

repairs, after which they must be promptly replaced. When the commissioner of labor prohibits the use of dangerous machinery, a notice is attached to it, which may not be

removed until the dangerous condition is remedied or safeguards provided. Until this is done, the machinery is not to be used.

In factories where elevators, hoisting shafts, or wells are used, these must be properly inclosed or guarded with automatic traps and doors. Proper stairways must be provided with substantial hand-rails, the steps of the stairs covered with rubber, and the sides and bottom of the stairs properly screened. All doors leading in or to a factory must be so constructed as to open outwardly, and are not to be locked, bolted, or fastened during working hours. Every factory must be provided with fire escapes.



Scaffolding with safety rails

In the construction of buildings in cities, suitable scaffolding must be provided for the safety of the workmen. Scaffolding that is twenty feet or more from the ground or floor must be furnished with a safety rail. Floors must be laid or planked over to within two stories of the height of a building in course of construction.

More recent laws.—Three special laws directly or

indirectly affecting the safety of workers in New York were passed recently. One of these provides for the increase of the force of state factory inspectors from 52 to 85, and for a better organization of the work of inspection.

Another law created the office of State Fire Marshal, whose duty is to enforce all laws and ordinances of the state, except in cities having over one million inhabitants, with regard to the prevention of fire, the storage, sale, and use of explosives, the installing of automatic fire alarm and fire extinguishing systems, the inspection of steam boilers, the construction, maintenance, and regulation of fire escapes, the means and safety of exit in cases of fire in all places where people work, live, or assemble from time to time, and the investigation of the cause, origin, and circumstances of fires.

A third law incorporated the American Museum of Safety, whose object is to help solve the problems of industrial accidents, largely by means of education as to the causes of accidents and the methods of preventing them. To the director of this museum any worker may apply for advice.

POINTS TO REMEMBER

1. Prepare in advance to get working papers by doing your school work as well as possible and obtaining your birth certificate before you need it. The better school education you have, the easier it is to make your way upward in any work.
2. Inform yourself of the kind of work that is permitted to one of your age.
3. Do not become a lawbreaker even though it seems hard to be restricted in your choice. Laws are

wisely made for your protection and do not reflect upon your courage or ability.

4. By all means find out the legal length of the working day and week for your trade and get your due on overtime. Remember that you must preserve your vital capital of health and that overtime costs you all the added wages you get. Meet your employer more than halfway and make his interests your own.
5. See to it that you know all the sanitary regulations concerning your work. If they are lacking, organize a committee and inform your employer.
6. Coöperate with your employer in improving conditions. He will always be won by the economic value of the welfare of his employees.

CHAPTER XVIII

SEASONAL HYGIENE

Cold weather. — Keeping well is mainly a matter of good daily hygienic habits. It is necessary, however, to make special adjustments to very hot and very cold weather to avoid discomfort and disease.

The body is kept warm because chemical changes constantly occurring within it cause heat. The greatest of these processes is oxidation, which is just like the burning of a fire, only much slower. Oxidation occurs more rapidly when muscles are exercised and this is the reason why we thrash our arms, stamp, and run when we wish to get warm. It explains also why we shiver when we are cold, for the little muscles in the skin automatically contract many times a minute in their endeavor to warm the surface of the body.

Food. — We must therefore exercise more when it is cold. To do this we need more food. The best foods for cold weather are the fats and carbohydrates, because these are oxidized into water and carbonic acid gas without leaving much waste behind. Proteids should be increased a little to replace worn-out tissue, but not very much. The Eskimos know this instinctively, and are fond of fats and feast upon the raw blubber of the whale.

As we have seen, food is of little use unless well digested, so in cold weather particular care should be exercised in

eating slowly, in masticating thoroughly, and in avoiding constipation.

The use of alcohol is particularly dangerous in cold weather, for it brings the blood to the surface, making us feel warm for a while, but really chilling the blood much too fast and reducing the vitality.

Clothing.—Linen mesh underwear is expensive, but the best; cotton may be worn, but it retains moisture; light wool underclothing is next best after the linen mesh. If forced to remain long in the cold, remember that an extra woolen shirt is worth more than an extra overcoat. A paper vest is better than a sheepskin jacket, and fur clothing is usually bad. If you are warm from work at the end of the day, wash with tepid water as thoroughly as possible, change the underclothes, and cool off before going out. This is very important, for a tired man takes cold easily.

Rubbers should be worn to avoid wet feet. If the clothing is wet, it should be changed at once and a brisk rub taken.

Frost bite and freezing.—When the cold is intense, rub the ears occasionally with the mitten or glove to re-establish the circulation, even though the operation hurts. If the tips of the ears get white, they are frozen and should be vigorously rubbed.

If the feet are cold or frozen, rub them with snow, then with very cold water. Do not go near the stove or use warm water. Wrap them up carefully and chafe occasionally with cold water, treating them with great care, for they are easily injured. The feet once frozen are sensitive for a long time, and should be rubbed every night with cold water and salt to reestablish the normal resistance of the tissues.

Chapped hands. — Always dry the hands thoroughly after they have been washed. If they are rough, rub them with camphor ice (a mixture of vaseline, camphor, and lard) before going to bed.

Bathing. — Never neglect the cold douching of the chest and neck in cold weather. The time you feel least like doing it is the time it is most needed. There are many persons with whom a cold bath once a day does not agree; these should bathe only part of the body at a time, or use tepid water. There are many more who would be much benefited by taking the tonic bath, but who do not do so merely because of physical laziness.

Colds. — The common cold is a house disease. People who live an active out-of-door life seldom, if ever, suffer from colds. They are dangerous, even the least of them, for they are symptoms of a lowered vitality, and sometimes so affect the health as to lead to consumption.

Causes. — The most frequent cause is constipation, for the waste food, which should be passed away daily, remains in the intestine to decay, and the body absorbs poison from it. This reduces the vitality so that infection by microbes, which are always present, is made easy. Regular morning exercise (Chapter II), drinking enough water, and eating green vegetables will prevent constipation, headaches, and most colds.

Fatigue and lack of sleep will lower vitality, so that the slightest exposure will cause colds. These result more often from staying up late nights than from working too hard. Changes of temperature rather than cold weather in itself will cause colds, and then only when the body is not trained to adjust itself to such changes.

Preventive measures. — The surest way to prevent colds is to train the skin and circulation to adjust themselves to protect you from such changes. A traveler in the West once remarked to an Indian who strolled about in zero weather, protected only by his blanket, "I should think you would catch cold." The Indian replied, "Why you not cover your face? Ugh! Me all face." His whole body had been adjusted to cold, just as is the skin of the face, and he suffered no inconvenience.

If we follow the directions of Chapter II and take a cold douche on the neck and chest, we shall train just so much of the body to resist colds. To make cold bathing more effective, add salt, preferably sea salt, which may be put in the water $\frac{1}{2}$ lb. to four gallons, and rub the body with a coarse towel. Train yourself up to cold water gradually, and bathe, rub, and dry one portion of the body at a time. This should be repeated at night. With the surface of the body well trained, you need not pile on clothes to keep warm. Too much clothing, such as furs or rubber garments, leads often to overheating; a wrap is thrown off, the skin is cooled too suddenly, and a chill results.

Wet feet cause many colds. If you come home with cold or wet feet, bathe them first in tepid, then in warm, then in cold salt water, and rub them very hard. Never neglect wet feet. A little care will save much trouble.

Most colds are "catching," so avoid the person with one. Always cover the face with a handkerchief when you cough or sneeze.

Cure of colds. — Never neglect a cold. In the sneezing stage use douches of salt water in the nose and throat every three hours. Take a hot mustard footbath, a glass of hot

lemonade, and open the bowels with a mild cathartic. Stop work and rest flat in bed if you can, to allow the body to get in fighting trim. Quinine is useful in small doses, three grains every five hours as a tonic; spirits of camphor, two drops on a lump of sugar three times a day, may help a little.

Very often a physician may relieve a cold for you by sprays of oils and antiseptics, and you should go to him, if possible. If there is a fever of over 100° , stay indoors until it subsides. Many believe in a few drops of kerosene oil, or a teaspoonful of vaseline taken internally and rubbed on the face, neck, and chest.

Nevertheless, colds will often take hold, and then nature effects its own cure. The treatment consists of as much rest as possible, keeping the bowels open, nasal douches of warm salt water, $\frac{1}{2}$ teaspoonful to the glass, and three grains of quinine three times a day. Patent medicines and cough sirups are usually bad, for they decrease vitality and cause constipation. No change should be made in the diet, save the cutting off of coffee, tea, and red meats. Too much water is usually drunk on account of the dryness of the throat, but this only increases the discomfort. A rise in temperature over 100° , sharp pain in the chest, a constant cough, or one that refuses to clear up in two weeks, and any earache whatsoever mean that you should have medical advice without fail.

As a rule too much medicine is taken for the cold, and the body has more to recover from than it should. Our friends' advice is not so good as the doctor's.

Hot weather. — In hot weather the body has difficulty in ridding itself of its heat, and discomfort results. Heat

is passed from the body mainly in the outgoing breath, but also from the surface of the skin. The loss of heat from the skin is quickened by the evaporation of the perspiration which is much increased in warm weather. In hot countries water is cooled by placing it in unglazed earthenware jars which allow it to pass slowly through the pores and evaporate on the surface; our bodies cool themselves in just the same way.

This principle should guide much of our habit of life in hot weather. The man who is quietly active on a very hot day and moves about at his work is cooler than one who sits still and thinks how hot it is. A current of air will increase the rate of evaporation and make us cooler. Great care should be taken not to sit directly in the draft of an electric fan, for a stiff rheumatic back or a summer cold will result. One should always keep out of the sun and never hurry. Rest is more essential, though sleep is often difficult to obtain. Some people are made more comfortable by a cool or tepid bath a half hour before retiring. A very quick hot bath will bring the blood to the surface and will often result in cooling the body effectively.

No one should sleep without bed clothing. Extra coverings should be ready to be pulled up when the cooler morning hours come. Much comfort may be obtained by making a tent of the sheet, open at the foot and head; this seems to provide a circulation of air, even when little is stirring.

Food.—Less food is needed in hot weather than in winter. The fats and carbohydrates (Chapter V), which are mainly useful for the production of heat and energy, should be decreased, and fruits and green vegetables should form the bulk of the diet. So much water is lost through the

skin that much more must be drunk. One should never drink cold water quickly, for in many cases this has resulted seriously. Too much water injures the stomach and chills the organs of the body, resulting in a condition which gives rise again to thirst. If one glass of water, drunk slowly, leaves one thirsty, it is probable that another taken immediately will cause harm.

Summer drinks are usually not harmful, although most of the cheap ginger ale, sarsaparilla, and such beverages contain too much sugar, and in addition are adulterated and positively harmful. Lemonade or plain carbonated waters are the best. Alcoholic drinks of any kind are invariably harmful, for they decrease vitality and weaken the body materially.

Food spoils quickly in hot weather, and we can afford to be more particular in our choice for we eat very much less. "Made over" dishes should be viewed with suspicion. Any fruit that has been handled by another person should be washed with care or cooked.

Nothing that flies have reached should be considered good food, for flies carry the germs of diarrhea, colitis, dysentery, and typhoid. If this rule were followed, these diseases would practically disappear.

Milk should always be fresh; if it tastes the least sour, it should be refused. "Scientifically soured" milk is an excellent summer food. Milk should always be drunk slowly, and preferably while eating something solid.

Clothing. — The underclothes should be of mesh, and the overclothing light in weight and color. Light orange or khaki is the best color for those who must work in the sun. The best hat, next to the well-ventilated pith helmet of the tropics, is one that is oval in shape and raised from the head on a

framework to allow the freest circulation of air. Most straw hats are not properly ventilated and do not keep all the sun out. They should be lined, preferably with black material and the air given free access to the head.

Care must be taken that the body does not become chilled, and two places, the back and the abdomen, should be especially protected. In India it is the common practice to wear a flannel band about the abdomen. This is called the cholera belt, as it is useful in warding off that disease. Although cholera is caused by a bacillus which attacks only those who eat or drink infected food, the cholera belt prevents the chilling of the abdomen, keeps the intestines in good tone, and thus helps them to resist the infection. Most summer diarrheas may be avoided with similar care.

Mosquitoes. — It has been proved that some mosquitoes carry malaria and others, yellow fever. The latter is rapidly becoming a thing of the past on account of the vigorous action taken in cities where it has existed to clean, fill, or cover all swamps and cisterns where the fever-causing mosquitoes breed.

Malaria is common in city and country, although about most wide-awake cities swamps have been drained. It usually brings with it a feeling of depression and a fever preceded by a chill on every other day, although the fever may be continued from day to day without any interval or chill. If this occurs in spring or summer, one should, before taking medicine, go immediately to a doctor or clinic and ask to have a drop of blood examined. If the disease is malaria, the germs will be found in the blood. It is important not to take quinine before the investigation of the

blood, for it will kill off the germs in the blood and prevent a successful examination. If malaria is present, it should be attacked, not by one dose of medicine, but with a thorough course of treatment which will search out and kill all the germs in whatever corner of the body they may hide.

FOR SUMMER AND WINTER

To keep well in winter:

1. Keep up the good daily hygienic habits.
2. Eat more fat and carbohydrate food and chew it well.
3. Too much clothing is as bad as too little. Good vitality, based on good digestion, is better protection than a fur coat.
4. Take care of chapped hands and wet feet.

To avoid colds:

1. Keep the digestion in order and avoid constipation.
2. Train the body to resist cold by the morning and evening cold douche.
3. Do not waste your vitality.

To keep well in summer:

1. Keep busy, do not fret about the heat, and rest when you can.
2. Keep out of the sun and avoid the direct draft of the electric fan.
3. Dress lightly, but protect the back and abdomen. Be careful to drink only clean water, not too cold and not too much at once.
4. Alcoholic drinks are to be avoided.
5. Do not eat too much; vegetables and fruits are the best.
6. Do not eat anything that has been exposed to dust or flies.

CHAPTER XIX

TUBERCULOSIS¹

Why you should be interested. — There are many reasons why you should be interested in the subject of tuberculosis. You or some of your family or friends may develop the disease. By knowing something about it you can greatly lessen the chance of getting it; if you do get it, you will know what to do in order to get well, and to keep others from getting it from you.

What tuberculosis is. — Pulmonary tuberculosis is a very common, and frequently a fatal, disease of the lungs. It is caused by the growth and multiplication in the lungs of a very small germ, called the tubercle bacillus, which is so small it cannot be seen without the use of a very powerful microscope, which magnifies it several hundred times. Twenty-five hundred of these germs placed end to end would not be one inch in length.

These germs may gradually spread through the greater part of one or both lungs, destroying the usefulness of those organs, until finally the patient dies of the disease.

The disease is often called consumption, for the reason

¹ This chapter, published by permission, is taken mainly from a booklet prepared by the Department of Health of the city of New York and the Committee on Prevention of Tuberculosis of the Charity Organization Society in consultation with the Department of Education.

that during its progress the patient loses weight rapidly, and hence seems to be consumed.

Tuberculosis may infect any other part of the body besides the lungs, such as the bones, joints, intestines,



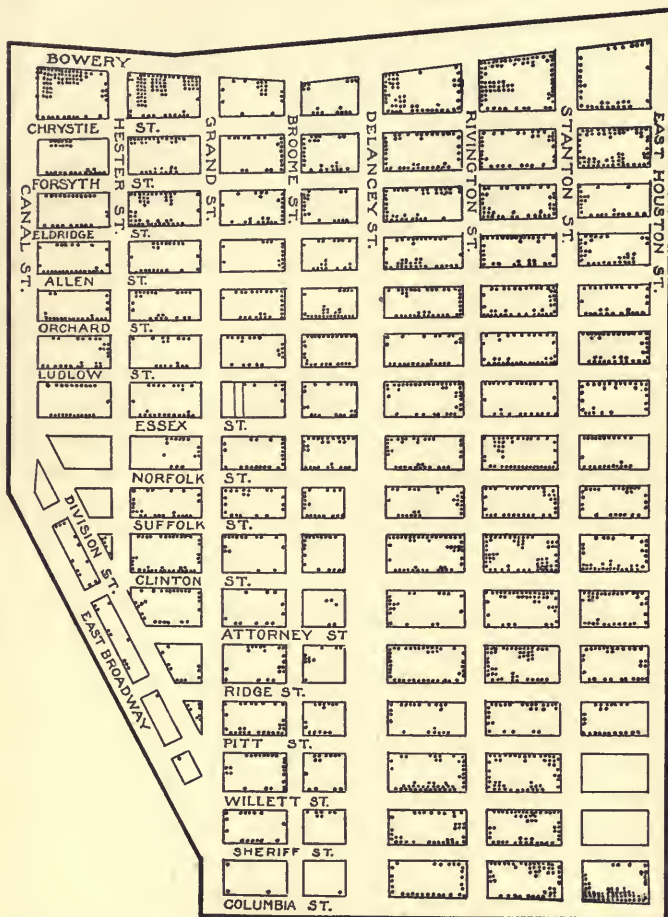
Out-of-door treatment for consumptives

glands, brain, spinal cord, and the skin, but of all forms of inflammation, that of the lungs is the most common.

The tubercle bacillus is the only cause of the disease. Many people think that pulmonary tuberculosis comes from a cold or some other disease, or is inherited. This is not correct. The reason why people develop tuberculosis after a prolonged cold or pneumonia or other exhausting disease is because their systems have run down to such an extent that they are not strong enough to resist the tubercle bacilli taken into their bodies.

The germs are widely distributed, and practically all

people breathe them in at times. If their systems are in excellent condition, the germs do not gain a foothold and



Map showing the extent of tuberculosis. Each dot means one case for that house

start the disease. Any condition that weakens the body predisposes one to consumption.

Extent of the disease. — Tuberculosis kills more people than any other disease. Every three minutes some one in the United States dies from consumption. Every year more persons die in the United States from consumption than died in this country from yellow fever in a period of one hundred and fifteen years. Three or four times as many people die every year in the United States from this disease as were killed in both armies during the Civil War. Every seventh person who dies, dies from tuberculosis.

Symptoms. — There are a number of symptoms which might lead a person to suspect that he has pulmonary tuberculosis; namely, loss of weight, loss of appetite, loss of color, fever in the afternoon, cough and expectoration (spitting) lasting for several weeks, spitting of blood or streaks of blood in the sputum, chills, night sweats, difficulty in breathing, and pains in the chest. In incipient tuberculosis the commonest symptoms are loss of weight with cough and expectoration.



The fly helps to spread tuberculosis

When these symptoms occur, it does not necessarily mean that tuberculosis exists, but it would be wise for a person having them to consult a physician.

How we get tuberculosis. — We can get tuberculosis only by receiving into the body the tubercle bacilli. One consumptive infects another, or gives tuberculosis of the lungs to another, by means of the tubercle bacilli in the material

coughed up from the diseased lungs, which often contains millions of these germs.

The germs get out of the body of a person who has tuberculosis, not only in the material which is coughed up, but also in the little drops, too small to be seen, which are



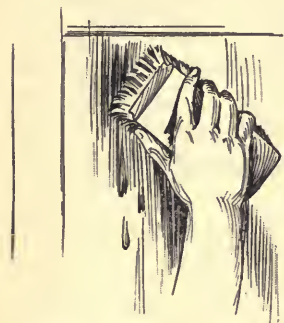
On the roof in winter

sprayed out when persons with tuberculosis cough or sneeze.

Great care should be taken to destroy all material coughed up by the consumptive, and to avoid careless coughing and sneezing. If this is not done, and if the sputum is dis-

charged on the floor or carpets or clothing, the germs may live for months, especially in dark, damp, unventilated bedrooms, living rooms, and workrooms.

The germs live in the darkness and dampness for a long time and are stirred up in dusting and sweeping these rooms; they float in the air and may be breathed into the lungs, or may fall upon articles of food and be taken into the body in that way.

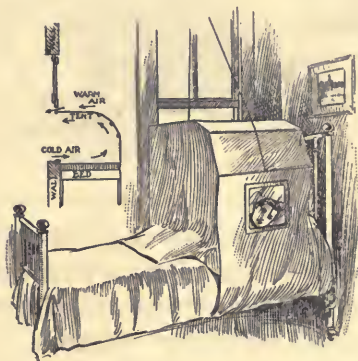


Scrubbing walls to get rid of germs

It is not safe to move into a house or rooms in which a patient with tuberculosis has lived until the house or rooms have been thoroughly cleansed and disinfected or renovated.

The people most likely to get tuberculosis are those who are run down or ill from poor or insufficient food, from living in dark, overcrowded, or ill-ventilated rooms, or from over-work, and those who are convalescent from other exhausting diseases. Their weakened systems cannot resist the disease.

Working or living in dusty rooms may lead to the disease, especially where the air is bad from poor ventilation or overcrowding.



How to prevent tuberculosis. — In order to keep from getting tuberculosis, the first and most important rule is to keep as strong and healthy as possible.

When the tubercle bacilli get into the body or lungs of a healthy person, they do not multiply but are usually soon killed, while in the lungs of a weak or sickly person they increase in number and produce tuberculosis.

Of great assistance in keeping well and strong are quantities of fresh, pure air both in the daytime and at night, in



Dr. Knopf's window-tent in position, and raised when not in use

the home, in the schoolroom, and in the workroom, together with proper food, cleanliness, and temperance.

One can get fresh, pure air by keeping out of doors as much as possible, by keeping the living rooms during the daytime well-ventilated, and by keeping the windows of the bedrooms wide open all night.

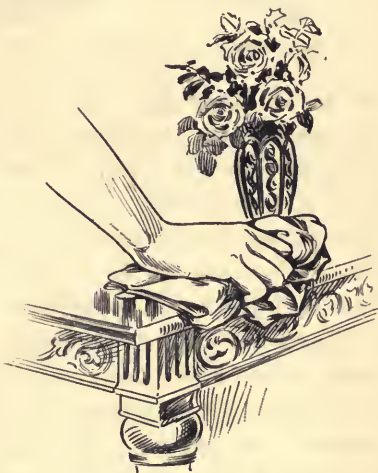
Dust may be avoided largely by the use of damp cloths and brooms (never use a dry broom or duster).

Children should be taught not to put anything into their mouths except food. Putting pencils, coins, or playthings in the mouth, and eating candy or chewing gum which other children have had in their mouths are dangerous habits, and should be avoided.

Overindulgence in whisky or other forms of alcohol predisposes one to tuberculosis, and the use of intoxicants of any kind in tuberculosis is distinctly injurious. Alcohol weakens the body so that it cannot resist the disease germs.

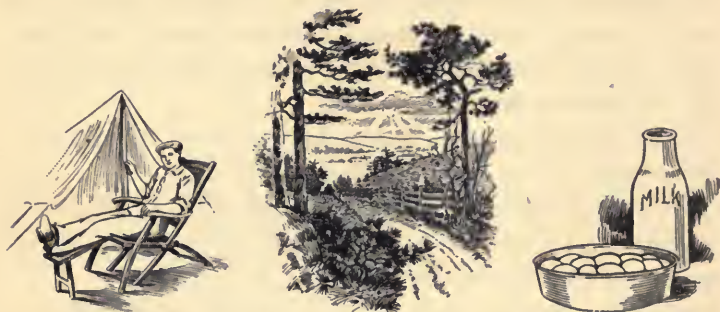
Every person should take a warm bath with soap at least once each week, and if possible, should have a cold bath every morning.

Medicines. — There is no medicine that will cure consumption. It is a waste of time and money to use so-called



Use moist cloths for dusting

“Consumption Cures.” All advertised cures of this nature are frauds. Doctors who advertise should be avoided as



The best cures are rest, plenty of fresh out-of-door air, and wholesome food

much as medicines which are advertised. Reputable doctors do not advertise. The consumptive always feels stronger than he really is and often neglects treatment until it is too late. When a person learns that he has tuberculosis, he should go at once to a physician or a dispensary, and do as he is advised. He should not waste time and money on patent medicines.

Treatment. — The treatment for tuberculosis is rest, with plenty of fresh air and enough good, wholesome food.

No medicine is necessary except in cases where other diseases are present. Tuberculous patients should eat three good meals each day, and in addition take milk in the mid-morning and mid-afternoon. They should get all the rest and sleep possible, and should avoid overwork and too much exercise.

If treatment is begun early, tuberculosis can be cured by good food, fresh air, and rest. The best results are obtained in hospitals or sanatoria which are located in the country.

It is not dangerous to live or work with a person who has tuberculosis if he is cleanly, and is very careful to destroy



The careful consumptive washes her hands before and after eating; coughs, spits, and sneezes into paper or cloth and burns it at once; and always uses the same dishes, which are washed separately

all the sputum which he coughs up. A person with tuberculosis should not sleep in the same bed with any one else, and if possible, not even in the same room.

HOW YOU CAN HELP

1. By instructing others as to the nature, prevention, and cure of tuberculosis.
2. By teaching others how to breathe deeply and to observe the simple rules of health.
3. By keeping the home clean and well ventilated, and by sleeping with the windows open.
4. By keeping clean; by putting nothing into the mouth except food, and by eating only wholesome and nourishing food.
5. By staying as much as possible in the fresh air and sunshine.

APPENDIX

A SUMMARY OF THE COMPULSORY EDUCATION LAWS OF NEW YORK STATE

1. Every child between *seven* and *sixteen* years of age, in proper physical and mental condition to attend school, shall regularly attend upon instruction, during the compulsory school year, or receive equivalent instruction by a competent instructor elsewhere.

2. Children between fourteen and sixteen years of age who have employment certificates issued by the Board of Health *and are regularly employed thereunder* are exempt from school attendance, except that boys between fourteen and sixteen years of age, legally employed, who have not been graduated from the elementary course must attend evening school until sixteen years of age. Evening school attendance cannot be substituted for required attendance at a day school.

3. It is unlawful for any person, firm, or corporation to employ any child under sixteen years of age who does not legally possess an employment certificate.

4. A certificate of school attendance or of graduation, *without an employment certificate*, gives a child no right to leave school.

5. To obtain an employment certificate under Sec. 71 of the Labor Law, a child must have the following qualifications:—

First: He must be at least fourteen years of age.

Second: He must have attended school 130 days within the year preceding his fourteenth birthday, or within the year preceding his application for the certificate.

Third: He must be able to read and write simple sentences in English, and be familiar with the operations of arithmetic "*up to and including fractions.*"

Fourth: The date of the child's birth must be proved to the satisfaction of the Board of Health, by the production of documentary evidence *in the following order*:—

(a) A transcript of a birth certificate filed in the office of a registrar of vital statistics.

(b) A certificate of graduation from an eight years' course in an elementary school, provided that the records of such school show the child's age to be fourteen years.

(c) A passport or baptismal certificate.

(d) Other documentary evidence of age, satisfactory to the Board of Health. (*The unsupported affidavits of parents or guardians are not accepted under this subdivision.*)

(e) Physicians' certificates of probable age. In case other evidence cannot be produced, a parent or guardian may apply to the Board of Health for the certificate of two physicians as to the child's age. *Ninety days* must elapse after application before such certificate can be granted.

6. To obtain a school record certificate a child must (1) have completed the studies of the 5 A grade, or its equivalent; (2) be examined as to his educational qualifications. This examination need not be required of pupils above the 6 B grade.

First: an examination of all applicants for a school record certificate shall be held in each district every second week, at a time and in a certain school building to be designated by the district superintendent.

Second: Any boy or girl, between fourteen and sixteen years of age, who has completed the studies of the first half of the Fifth School Year (New York City Schools) or its equivalent, shall be eligible to take this examination.

Third: The scope of the examination should be essentially as follows:—

(a) The writing of a bill which includes some simple work in fractions, with multiplication and addition in the extensions.

(b) The solving of three or four simple problems in business arithmetic.

(c) A simple exercise in dictation.

(d) Oral reading by each applicant from a fourth reader.

(e) The writing of an application for a position or some other form of letter writing.

Fourth: In case the work of an applicant is satisfactory, the principal may be so notified, and the pupil allowed to make formal application for a certificate. Pupils who fail should be compelled to return

to school, and work faithfully to overcome their deficiencies. They may enter the next examination.

7. The Department of Health requests that a principal before issuing the certificate of school attendance shall have the applicant examined physically by the Department's physician assigned to the school, and that the applicant shall present the physician's certificate along with the certificate of school attendance when he appears for examination at the office of the Department of Health.

8. A boy between fourteen and sixteen years of age, legally employed, who has not graduated from the elementary course, must attend an evening school or a trade school until he is sixteen years old.

9. Children of school age who do not possess employment certificates cannot be employed in stores, or other places, *on Saturday*, or in domestic service at any time.

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